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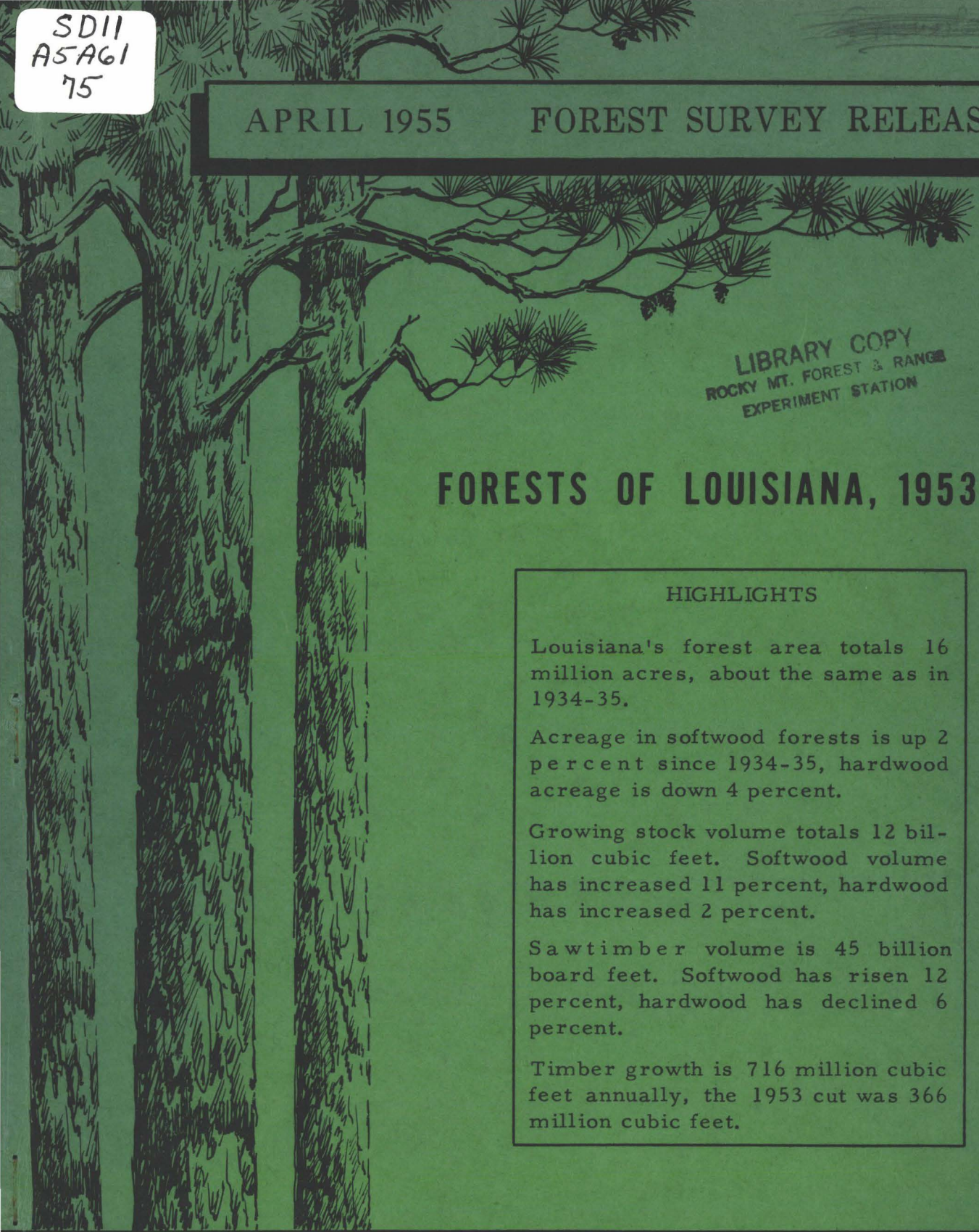

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FORESTS OF LOUISIANA, 1953-54

HIGHLIGHTS

Louisiana's forest area totals 16 million acres, about the same as in 1934-35.

Acreage in softwood forests is up 2 percent since 1934-35, hardwood acreage is down 4 percent.

Growing stock volume totals 12 billion cubic feet. Softwood volume has increased 11 percent, hardwood has increased 2 percent.

Sawtimber volume is 45 billion board feet. Softwood has risen 12 percent, hardwood has declined 6 percent.

Timber growth is 716 million cubic feet annually, the 1953 cut was 366 million cubic feet.

Southern Forest Experiment Station, New Orleans, Louisiana
Forest Service, U. S. Dept. of Agriculture

FOREWORD

The Forest Survey of Louisiana is a part of the national inventory being conducted by the U. S. Forest Service. The purposes of the Survey are (1) to take inventory of the supply of standing timber and other forest products, (2) to ascertain the rate at which this supply is being increased through growth, (3) to determine the rate at which this supply is being diminished through use, and by fire, insects, disease, and other destructive agencies.

The Southern Forest Experiment Station is responsible for the Survey in Louisiana, Alabama, Arkansas, Mississippi, Oklahoma, Tennessee, and Texas. This activity is under the direction of Philip R. Wheeler, chief of the Division of Forest Economics.

Large-scale cooperative assistance made it possible to complete the Louisiana Survey 2-1/2 years sooner than would have been possible with Federal funds alone. Cooperation in the form of manpower, equipment use, cash, or aerial photography was received from the following organizations:

Louisiana Forestry Commission	Crosby Chemicals, Inc.
Gaylord Container Corp.	First National Bank of De Ridder
International Paper Co.	J. A. Bentley Lumber Co.
Brown Paper Mill Co.	Guaranty Bank and Trust Co. of Alexandria
The Crossett Co.	Long-Bell Lumber Co.
Southern Advance Bag and Paper Co.	Hillyer-Deutsch-Edwards, Inc.
A. J. Hodges Industries, Inc.	Rathborne Land and Lumber Co.
Olin-Mathieson Chemical Corp.	Union Producing Co.
Central Louisiana Electric Co.	Louisiana Wildlife and Fisheries Commission
Louisiana Power and Light Co.	General Air Transport, Inc.
American Creosote Works, Inc.	United States Coast Guard
Frank W. Bennett and Associates	United States Air Force

The very material aid of these organizations, and of the individuals in them, is gratefully acknowledged.

PHILIP A. BRIEGLEB, Director
Southern Forest Experiment Station

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Louisiana has more hardwood sawtimber than any other State.

(Photo by Elemore Morgan)

FORESTS OF LOUISIANA, 1953-54

This report is the product of the new Forest Survey of Louisiana, made in 1953 and 1954. It shows the current status of the timber resource and discusses the changes that have occurred since the first Forest Survey of 1934-35. It briefly defines the forest problems that remain and the steps needed to achieve timber abundance.

The 18 to 20 years that elapsed between the two Surveys were eventful for Louisiana forestry. A vast body of fast-growing young timber replaced the virgin stands, most of which had already been cut over by the mid-thirties. Many large sawmills shut down and portable mills--which can operate in timber of smaller size--became more numerous. Pulpwood production almost doubled as Louisiana joined other southern states in a tremendous enlargement of the pulp and paper industry. Today, Louisiana's eight pulp mills consume more pine annually than do her several hundred sawmills.

What impact have these changes had upon the forest resource? The new Survey shows that Louisiana's timber, both pine and hardwood, is now growing almost twice as fast as it is being cut. Though large sawtimber trees are fewer in number, the total sawtimber supply, as well as the total growing stock, is greater now than 20 years ago. In fact, volume on the average forest acre in Louisiana is substantially more than in any other mid-South state that has been resurveyed.

To a considerable extent, the increase in Louisiana's supply of standing timber during the interval between Surveys reflects the inherent productivity of the forest in a region with favorable growing conditions. But it is also an indication of the increasing number of landowners who recognize that timber is a profitable crop and who are putting their forests under better management.

Figure 1.--Forest Survey regions in Louisiana.

THE FOREST RESOURCE

Forest Acreage

Forest acreage about same as in 1934-35.--Louisiana is 56 percent forested. Commercial forest area 1/ totals 16 million acres, virtually the same as in 1934-35. Reversion to forest of abandoned upland farms, where cotton has proved too hard a taskmaster, has been balanced by extensive land clearing on the fertile bottomlands--primarily in the Delta but also along major streams elsewhere in the State.

Much of Louisiana's cotton crop is now raised on the rich alluvial soils of the North Delta (fig. 1). Although clearing and draining the land has reduced the forested area by 11 percent during the past two decades, the North Delta remains 61 percent forested.

The South Delta is the least forested--only 29 percent, or 6 percent less than in 1935. A natural prairie extends through the western part of the region; in this prairie the only forest lands are in belts bordering the streams. Moreover, the entire coastal strip is a marshy, low-lying area up to 30 or more miles wide.

In the Northwest, center of Louisiana's pulp industry, forests cover 70 percent of the land. Here, reversion of abandoned farmland to forest increased woodland acreage 14 percent since 1935.

Southwest and Southeast Louisiana, locally known as the Piney Woods, have a greater proportion of their areas in forests than the other regions--72 percent each. Forest-area changes in both of these regions during the past 19 years were in the nature of small reductions.

Ninety-five percent of the commercial forest acreage is privately held. The bulk of the public ownership is in the Kisatchie National Forest in central Louisiana.

Softwood acreage up 2 percent; hardwood down 4 percent.--The forests of Louisiana fall into two broad categories. Hardwood forests are found principally on the alluvial flood plains; softwood forests

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1/ Technical terms are defined on pages 55-60.

occupy most of the uplands. Though area in softwood types has increased somewhat, hardwood types still occupy slightly more than half of the forest land.

Forests of loblolly-shortleaf pine, the principal softwood type, cover 4 million acres. The longleaf-slash pine type, which characterizes the lower Coastal Plain, occupies 2 million acres. On an additional 1.8 million acres, southern pines are heavily mixed with hardwood--oak, gum, hickory, and others.

In the Delta region and in belts of varying width along waterways throughout the State, bottomland hardwoods (oak-gum-cypress and elm-ash-cottonwood) make up 6.6 million acres. Oak-hickory forests dominate 1.6 million acres in the uplands (fig. 2).

Within the past 20 years there has been some shift of acreages in the major types (table 1). For the whole of Louisiana the area in softwood types (both pine and pine-hardwood) increased nearly 170 thousand acres. This is a net gain of 2 percent--i.e., conversion of pine areas to hardwood as a result of heavy pine cutting in oak-pine mixtures was overbalanced by reversion of abandoned fields to pine forests.

Table 1.--Commercial forest land by forest-type group (1953-54) and change between Surveys

Region	All types	Change	Softwood 1/	Change	Oak-hickory	Change	Bottomland hardwood 2/	Change
	Thd. acres	Percent	Thd. acres	Percent	Thd. acres	Percent	Thd. acres	Percent
North Delta	2,171.3	-11	168.3	+11	70.2	+78	1,932.8	-14
South Delta	2,819.6	- 6	97.7	+29	70.8	+55	2,651.1	- 8
Northwest	4,169.8	+14	2,785.4	+18	656.2	+50	728.2	-15
Southwest	4,874.5	- 2	3,525.3	- 4	576.1	+85	773.1	-24
Southeast	2,002.8	- 4	1,257.3	-12	228.6	+116	516.9	- 8
Total	16,038.0	- 1	7,834.0	+ 2	1,601.9	+71	6,602.1	-13

1/ Includes loblolly-shortleaf pine, longleaf-slash pine, and oak-pine types.
2/ Includes oak-gum-cypress and elm-ash-cottonwood types.

The area of Louisiana's hardwood forests receded. As has just been noted, there was some expansion of hardwood forests in the uplands. But this increase was overshadowed by extensive clearing of

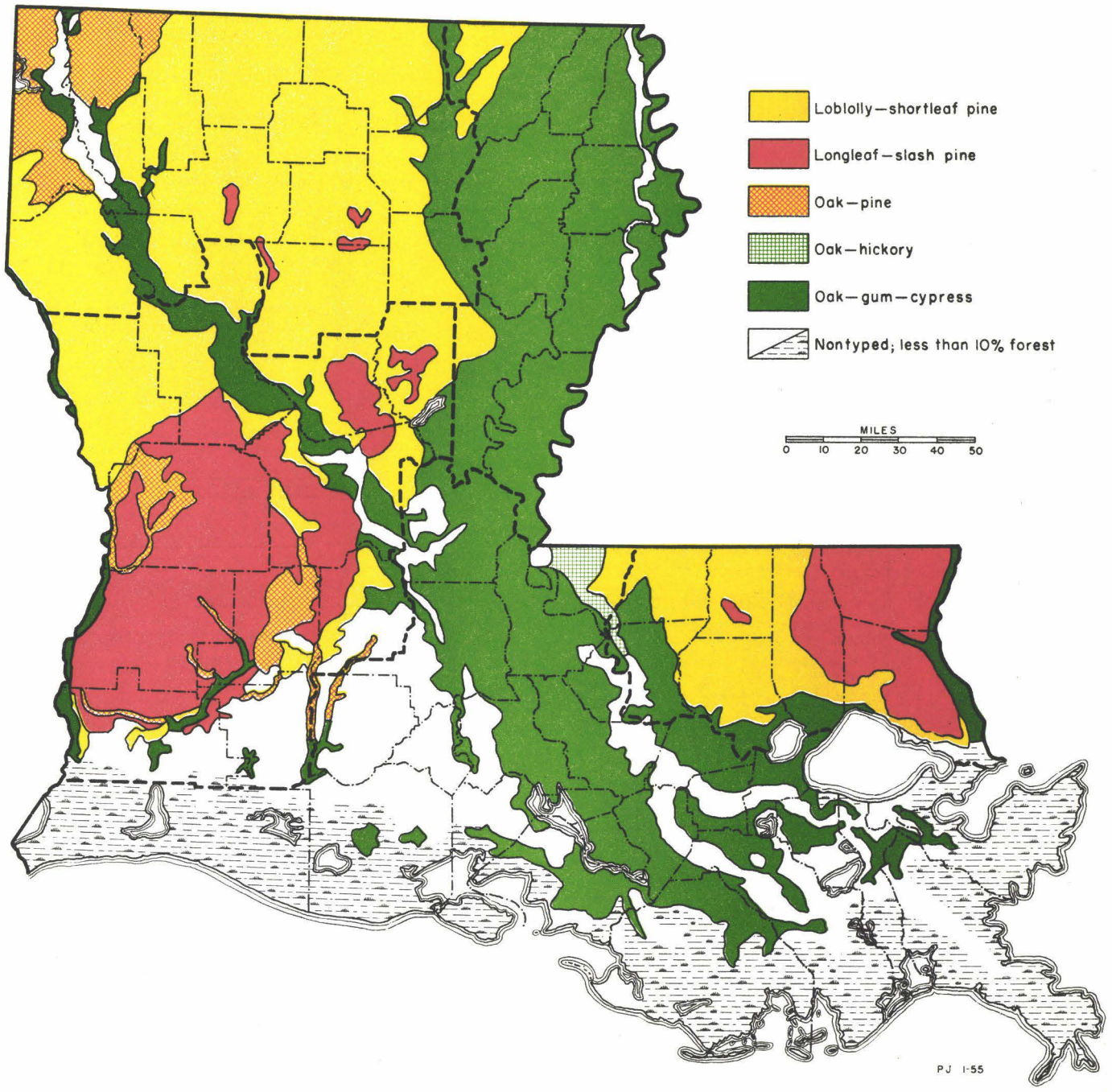

Figure 2--Major forest types in Louisiana.

hardwood lands in the bottoms. The net result of these changes is that the acreage of all hardwood types has dropped almost 4 percent since 1934-35.

Almost half the stands are sawtimber size.--Sawtimber stands--areas with a net volume of at least 1,500 board feet per acre, International 1/4-inch rule--make up 46 percent of Louisiana's commercial forest acreage. This is a greater proportion of sawtimber area than has been found in other mid-South states that have been reinventoried by the Southern Forest Survey.

Some two-fifths of the softwood acreage and half the hardwood is in sawtimber stands (fig. 3). Most of the remaining acreage is in poletimber.

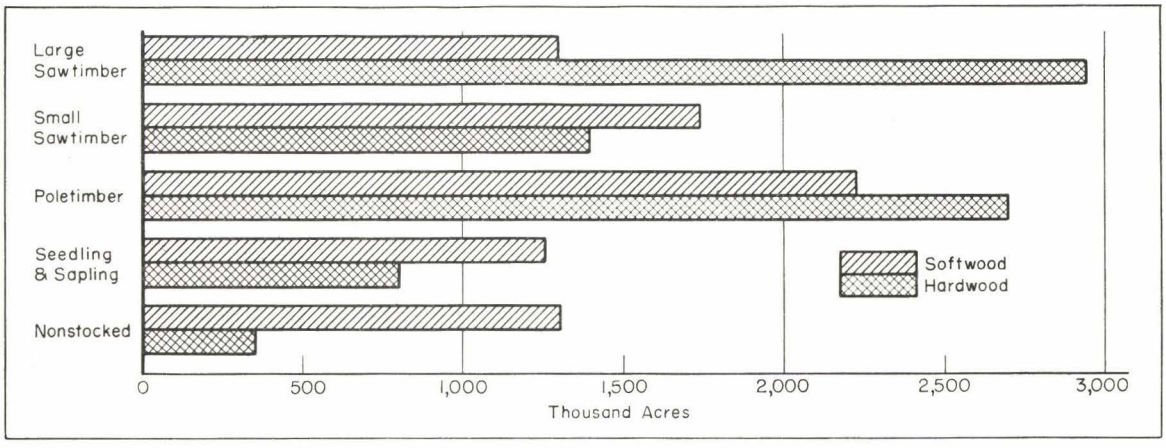

Figure 3.--Forest area by stand size and forest-type group, 1953-54.

Half the forest well stocked.--Tree stocking, as measured by the Survey, reflects the extent to which growing space is effectively utilized by sound, well formed trees of commercial species.

Fifty percent of the forest land is well stocked in the sense that it contains at least 70 percent of the number of good trees (including established seedlings) required for full stocking (fig. 4). Twenty-seven percent is medium stocked--40 to 69 percent of full stocking. Fourteen percent is poorly (10 to 39 percent) stocked, and 9 percent is nonstocked.

The loblolly-shortleaf pine type is the best stocked; longleaf-slash pine the poorest--it includes more than one million acres of cutover land, mainly in the Southwest.

Fuller use of available growing space in Louisiana's forests is impeded by an accumulation of culls--trees too rotten or limby to be merchantable. About one-fourth of the basal area of all live trees 5 inches d. b. h. and larger is in culls. Although the Northwest has the smallest proportion of cull basal area, the cull element in none of the Survey regions deviates markedly from the State average.

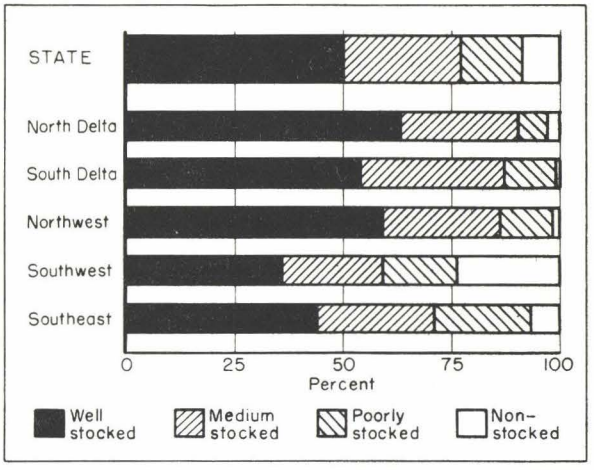

Figure 4. --Degree of stocking by region, 1953-54.

Timber Volume

Softwood growing stock increases 11 percent. --Louisiana's present stock of softwood timber totals 4.3 billion cubic feet--11 percent more than in 1934-35 (table 2). Part of this increase is attributable to better public fire protection in the pine belt, which reduced tree mortality, especially in the smaller sizes. The growing up to merchantable size of extensive forest plantations and of volunteer pine stands on abandoned farmlands played a part too. Finally, many of the large and a few of the small landowners began to harvest their timber conservatively and to supplement public fire protection with private measures.

Examination of the marked change in numbers of trees by diameter classes helps reveal the significance of the softwood volume increase (fig. 5). These changes only show the overall shifts that have occurred between Surveys--i. e., the net result of accretion of growing stock on some properties and of depletion on others.

Table 2. --Growing stock volume (1953-54) and change between Surveys

Region	Softwood		Hardwood	
	Volume	Change	Volume	Change
	Million cu. ft.	Percent	Million cu. ft.	Percent
North Delta	108.8	- 7	1,702.1	-22
South Delta	439.2	+35	2,466.1	+24
Northwest	1,596.1	+ 6	1,524.0	+ 6
Southwest	1,400.2	+13	1,511.8	+12
Southeast	764.5	+ 8	601.6	- 8
Total	4,308.8	+11	7,805.6	+ 2

Large increases in 2- to 6-inch softwoods in Northwest Louisiana indicate that a bigger pulpwood supply is imminent there; part of the gain in numbers of small softwoods is, of course, associated with the 18-percent regional increase in softwood acreage between Surveys.

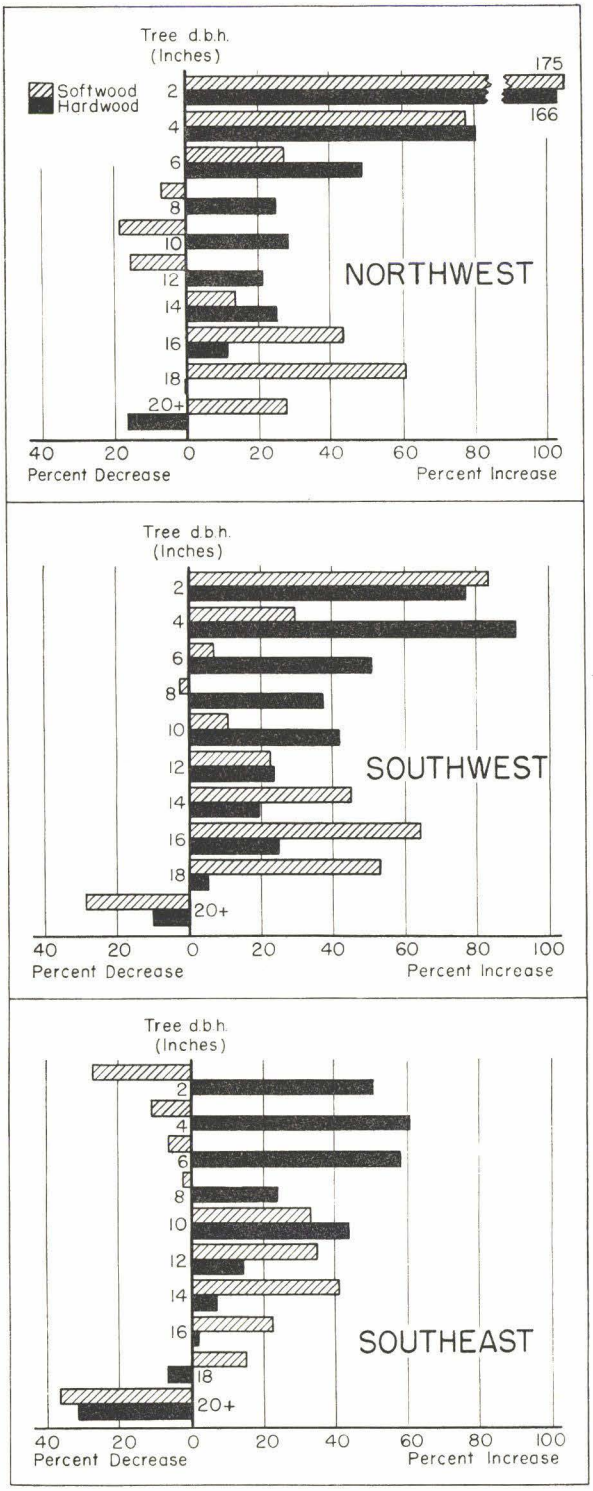

Figure 5. --Change in number of live trees between Surveys, upland regions.

Heavy cutting in sizes suitable for pulping has reduced softwood numbers in the 8- to 12-inch classes. Diameters above 12 inches have increased in number; a major portion of this timber is found on the big industrial holdings that are building up their softwood growing stock.

Southwest Louisiana had been heavily cut over just previous to the initial Survey; present stand tables indicate considerable improvement over conditions 19 years ago. Here again small softwoods have increased in number, with promise of early pulpwood volume. Most of the gains in 10- to 18-inch trees were concentrated on the better loblolly pine lands in the northern part of the region. Only 20-inch and larger softwoods show a big decline. Many landowners are cutting this large timber to sustain production while they are building up volume in the small and middle diameters.

In the Florida Parishes of Southeast Louisiana, considerable acreage is under management. At the time of the first Survey much of the softwood in this area was in young timber. By 1953, many of the small trees had grown up to swell the ranks of the 10- to 18-inch classes. And the fewer small trees characteristic of stands under management is reflected in the drop-off of sizes below 10 inches.

Hardwood growing stock increases slightly. --Hardwood

growing stock in Louisiana's forests amounts to 7.8 billion cubic feet (fig. 6). This is about 2 percent more than at the time of the initial Survey. Seven-tenths of the State's present hardwood volume occurs on bottomland sites, where desirable hardwood species generally prevail.

In the North Delta the extensive land clearing between Surveys has accentuated declines in hardwood sawtimber trees (fig. 7). But in the South Delta, where forest acreage reductions were smaller, the number of hardwoods in all diameter classes increased substantially--more than 25 percent in most sawtimber sizes. Though logging chances are not easy in the South Delta, the region

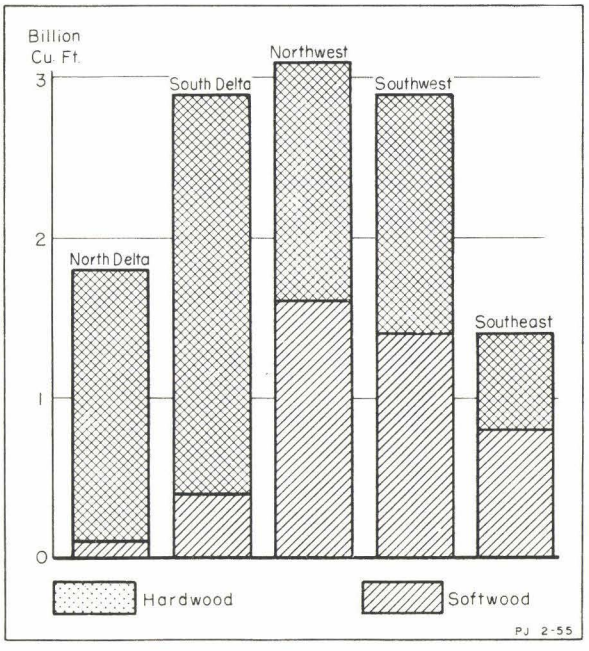

Figure 6.--Growing stock by region, 1953-54.

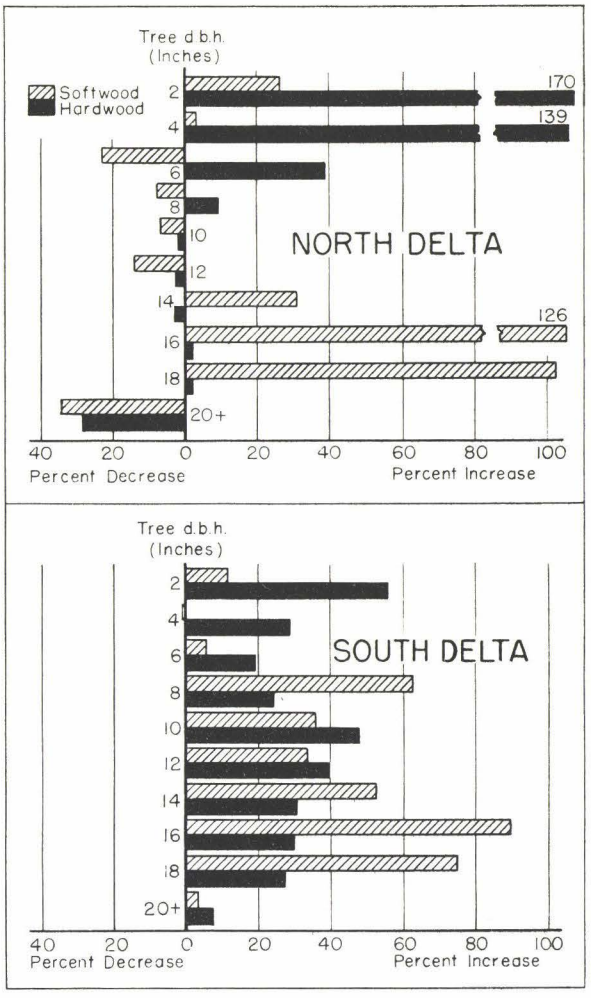

Figure 7.--Change in number of live trees between Surveys, Delta regions.

offers a considerable source of pulpwood: over half the region's hardwood volume is in cottonwood, willow, gums, and other soft-textured species.

In Southeast Louisiana, three-fifths of the hardwood volume is in bottomland stands along the Pearl River, the Mississippi River, and elsewhere. As in the South Delta, much of the South-

east's increase in number of hardwoods has no doubt taken place on hardwood sites. In the uplands, on the other hand, extensive tree-girdling programs on industrial holdings have helped check hardwood increases on areas best suited to pine management. But on many small holdings in the Southeast, removal of cull and low-value upland hardwoods still is a sizeable problem.

Changes in hardwood numbers are somewhat similar in the Northwest and Southwest regions. Improved fire protection in these pine regions has contributed to a build-up in 2- and 4-inch hardwoods; hardwoods in the middle diameters have increased too. Much of the hardwood in these regions occurs on pine sites, and its removal appears to be a big job.

Softwood sawtimber volume up 12 percent; hardwood down 6 percent.--Louisiana's supply of standing sawtimber totals 45.4 billion board feet, of which 20.3 billion is softwood (fig. 8).

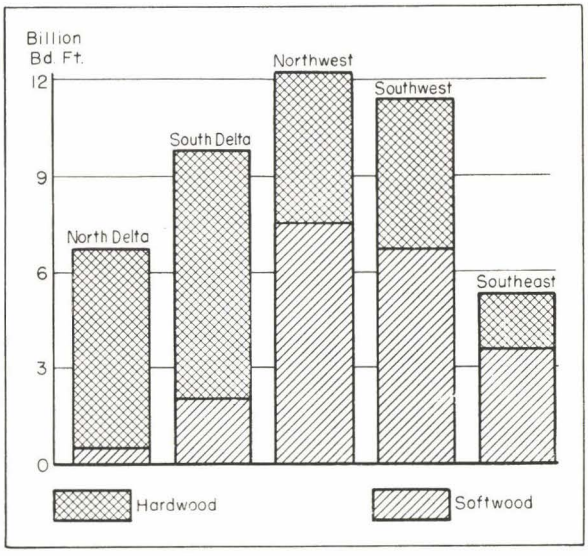

Figure 8.--Sawtimber volume by region, 1953-54.

Loblolly pine, comprising 27 percent of the sawtimber volume, is the leading softwood species (fig. 9). Other southern pines--chiefly shortleaf--follow with 12 percent. Cypress and other softwoods make up 6 percent. Among hardwoods, red and white oaks lead with 17 percent of the total sawtimber volume. Sweet-, black-, and tupelo gum add up to 16 percent; pecan to 5 percent; and all other hardwoods to 17 percent.

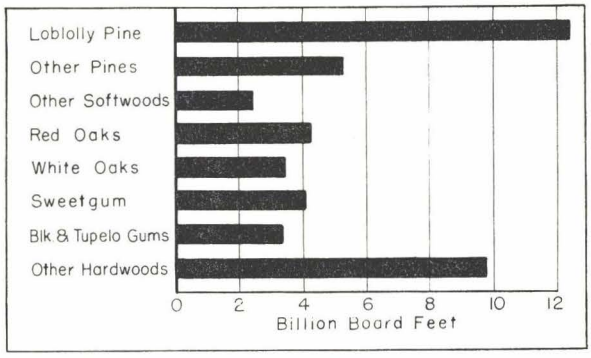

Figure 9.--Sawtimber volume by species, 1953-54.

Between Surveys, softwood sawtimber volume climbed 2.2 billion board feet, a 12-percent increase (table 3). Improvement was widespread over the State; in the upland regions, where southern pine predominates, increases ranged from 8 percent in the Southeast to 14 percent in the Southwest.

Hardwood sawtimber volume has dropped 6 percent since the initial Survey. This decline resulted partly from considerable land clearing in the bottomlands and partly from heavy logging of big trees. Despite the Statewide decline, hardwood sawtimber registered a 21-percent increase in the South Delta.

Table 3.--Sawtimber volume (1953-54) and change between Surveys

Region	Softwood		Hardwood	
	Volume	Change	Volume	Change
	Million bd. ft.	Percent	Million bd. ft.	Percent
North Delta	564.5	- 7	6,159.8	-28
South Delta	1,973.5	+33	7,791.9	+21
Northwest	7,520.1	+ 9	4,745.9	- 3
Southwest	6,679.1	+14	4,706.4	+ 2
Southeast	3,561.9	+ 8	1,696.5	-24
Total	20,299.1	+12	25,100.5	- 6

As table 4 indicates, there have been a few important changes in the proportion of total hardwood sawtimber volume by major species groups between Surveys. Among white oaks there has been a significant drop in relative amount. The "other firm-textured" category, which includes ash, elm, hackberry, and many lesser species, has notably increased.

Table 4.--Distribution of hardwood sawtimber volume by species, 1934-35 and 1953-54

Species group	1934-35	1953-54
	- - Percent - -	
Sweetgum	16.2	16.2
Black and tupelo gums	14.5	13.5
Other soft-textured hardwoods	10.2	9.8
Red oaks	17.1	17.0
White oaks	16.3	14.1
Pecan and hickory	10.7	11.2
Other firm-textured hardwoods	15.0	18.2
	100.0	100.0

Average sawtimber volume per acre has risen noticeably. The Statewide average is now more than 2,830 board feet per acre 2/; at the time of the first Survey it was 2,775 board feet. Pine types now average 2,755 board feet; oak-gum-cypress, 3,174 board feet; and oak-hickory, 1,984 board feet. For sawtimber stands alone, volume averages 5,246 board feet per acre.

Big-tree quality good.--Timber quality is partly a function of tree size; the proportion of good-quality logs--grades 1 and 2--mounts rapidly with increasing tree diameter (table 5). In hardwoods 20 inches d.b.h. and larger, over half the volume is in good-quality logs; in 14- to 18-inch trees, about one-quarter. But in the 12-inch class virtually

2/ Comparable resurvey volumes for neighboring States are: Arkansas, 1,903 board feet; Alabama, 1,841 board feet; and Mississippi, 1,776 board feet per acre.

Table 5. --Sawtimber volume by log grade and tree diameter, 1953-54

Species group and d. b. h. class (inches)	All grades	Grade 1	Grade 2	Other grades
		- - - Million board feet - - -		
Softwood:				
10 to 12	6,695.0	1.1	156.7	6,537.2
14 to 18	10,292.3	6.4	2,157.3	8,128.6
20 and up	3,311.8	424.3	771.6	2,115.9
Total	20,299.1	431.8	3,085.6	16,781.7
Hardwood:				
12	3,660.8	...	30.2	3,630.6
14 to 18	12,416.7	385.7	2,524.9	9,506.1
20 and up	9,023.0	2,555.9	2,245.1	4,222.0
Total	25,100.5	2,941.6	4,800.2	17,358.7
All classes	45,399.6	3,373.4	7,885.8	34,140.4

all the volume is in low-grade logs--small factory lumber logs, or logs that would yield chiefly crossties and construction lumber.

As for softwoods, grade 1 and 2 logs comprise 36 percent of the sawtimber volume in trees 20 inches d. b. h. and larger; 21 percent of the volume in 14- to 18-inch trees; and 2 percent in 10- and 12-inch trees.

Of the total sawtimber volume, three-tenths of the hardwood and one-sixth of the softwood is in grades 1 and 2. The low grade of much of Louisiana's timber is due to the prevailing small size of second-growth sawtimber trees. These trees, from which the harvests of the future must come, will improve in quality as they grow larger.

Timber Growth and Cut

Net annual growth 716 million cubic feet; sawtimber growth 2.8 billion board feet. --Louisiana's forests are growing 716 million cubic feet annually in growing-stock trees, including 2.8 billion board feet of sawtimber. Nearly nine-tenths of the softwood growth and three-fourths of the hardwood growth is on sawtimber trees.

Partly because of the liquidation of the slow-growing virgin timber, the current growth rate is about a third higher than when the first Survey was made. Annual net growth on growing stock now averages 5.9 percent, or 45 cubic feet per acre. It varies from 36 cubic feet in the Southwest to 57 cubic feet in the South Delta. In softwood types growth is slightly higher than in hardwood types: 46 cubic feet as compared to 43.

Annual net growth of sawtimber averages 175 board feet per acre for all stand sizes. In sawtimber stands, growth per acre averages 367 board feet in softwood types, 220 board feet in hardwood types. Regionwide, growth in sawtimber stands ranges from 180 board feet per acre in the North Delta to 372 board feet in the Southeast.

Total timber cut 366 million cubic feet; sawtimber cut 1.4 billion board feet. --Louisiana's timber is growing faster than it is being cut; annual net growth of both sawtimber and growing stock is almost double the 1953 harvest.

Timber cutting removed 366 million cubic feet from Louisiana's growing stock in 1953. Sawlogs and pulpwood together made up more than three-fourths of this volume; fuelwood, hardwood veneer logs, and pine poles and piling provided most of the remainder (fig. 10). Slightly over half the cubic footage cut was hardwood.

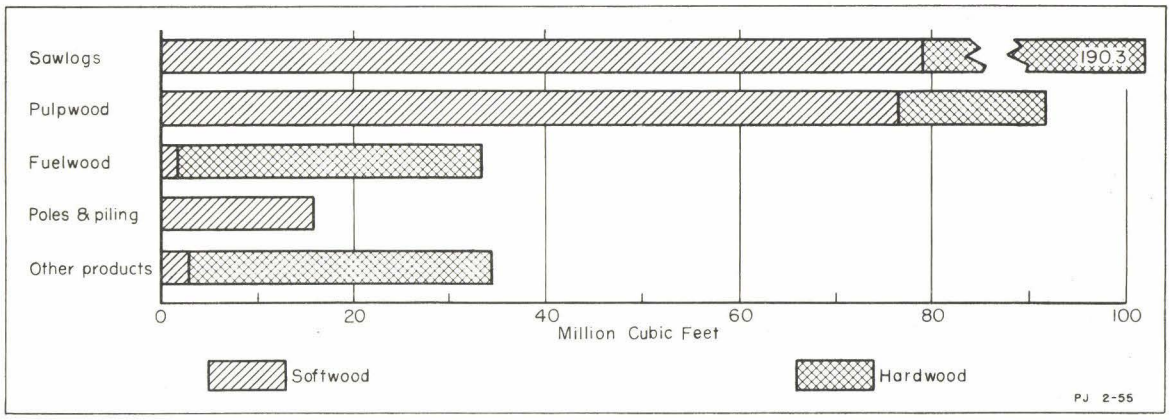

Figure 10. --Annual cut of growing stock, 1953.

Current timber growth and cut cannot be exactly compared with estimates from the first Survey. But analysis of available data, with due allowance for differing standards, provides a rough measure of what has been happening to Louisiana's timber supply. In 1937 the Survey estimated that the sawtimber cut exceeded the growth; this was the peak year of lumber production in Louisiana for the post-depression period. As the State's remaining old-growth was cut, many large sawmills ceased operating and lumber production declined. The increase in second-growth acreage under management also tended to depress timber output; numerous industrial landowners began to adopt the practice of cutting less than growth in order to improve stocking. Sometime between surveys, apparently in the mid-1940's, the cut gradually dropped below growth and Louisiana's timber supply began to build up.

Louisiana's eight pulp mills use more pine annually than do her several hundred sawmills. (Photo by Elemore Morgan)

FOREST INDUSTRY

Forest industry is a mainstay of Louisiana's economy. In 1953, the industry accounted for about 26 percent of all employees in manufacturing industries and for about 20 percent, or some $235 million, of the total value added by manufacture.

Louisiana's output of forest products feeds some 530 primary wood-using establishments distributed across the State--sawmills, pulp mills, veneer plants, cooperage plants, and others. In addition, 27 plants treat wood products with chemical preservatives. There is also considerable use of wood on farms for fuel, posts, and miscellaneous timbers (table 6).

Over half of logs cut for lumber are hardwood.--At least four-fifths of Louisiana's lumber output is from mills cutting more than 3 million board feet annually. About 18 of these mills manufacture more than 10 million each (fig. 11).

Table 6.--Distribution of timber output by round or split product, 1953

Product	All species	Softwood	Hardwood
	- - -	Percent	- - -
Sawlogs	43	40	46
Pulpwood	30	50	9
Veneer	3	...	6
Cooperage	(1/)	...	(1/)
Fuelwood	16	1	33
Poles and piling	4	8	(1/)
Posts	1	1	1
All other	3	(1/)	5
Total	100	100	100

1/ Negligible.

In 1953, production of logs for lumber (including sawn crossties) from Louisiana's forests amounted to 957 million board feet. Hardwood totaled 524 million, softwood 433 million. Oak and gum made up seven-tenths of the hardwood. Most of the softwood was southern pine, but some cypress was cut too.

1953 was the first year that the hardwood lumber cut exceeded the softwood cut (fig. 12). However, the proportion of hardwood has been gradually increasing. Since 1944 it has averaged about 45 percent of the State's lumber output.

Pulpwood cut hits new high.--The most notable trend in Louisiana's forest industry in recent years has been the big increase in pulpwood production--chiefly pine for sulfate pulp. In 1937 pulpwood accounted for 17 percent of the State's total softwood output; in 1953 it

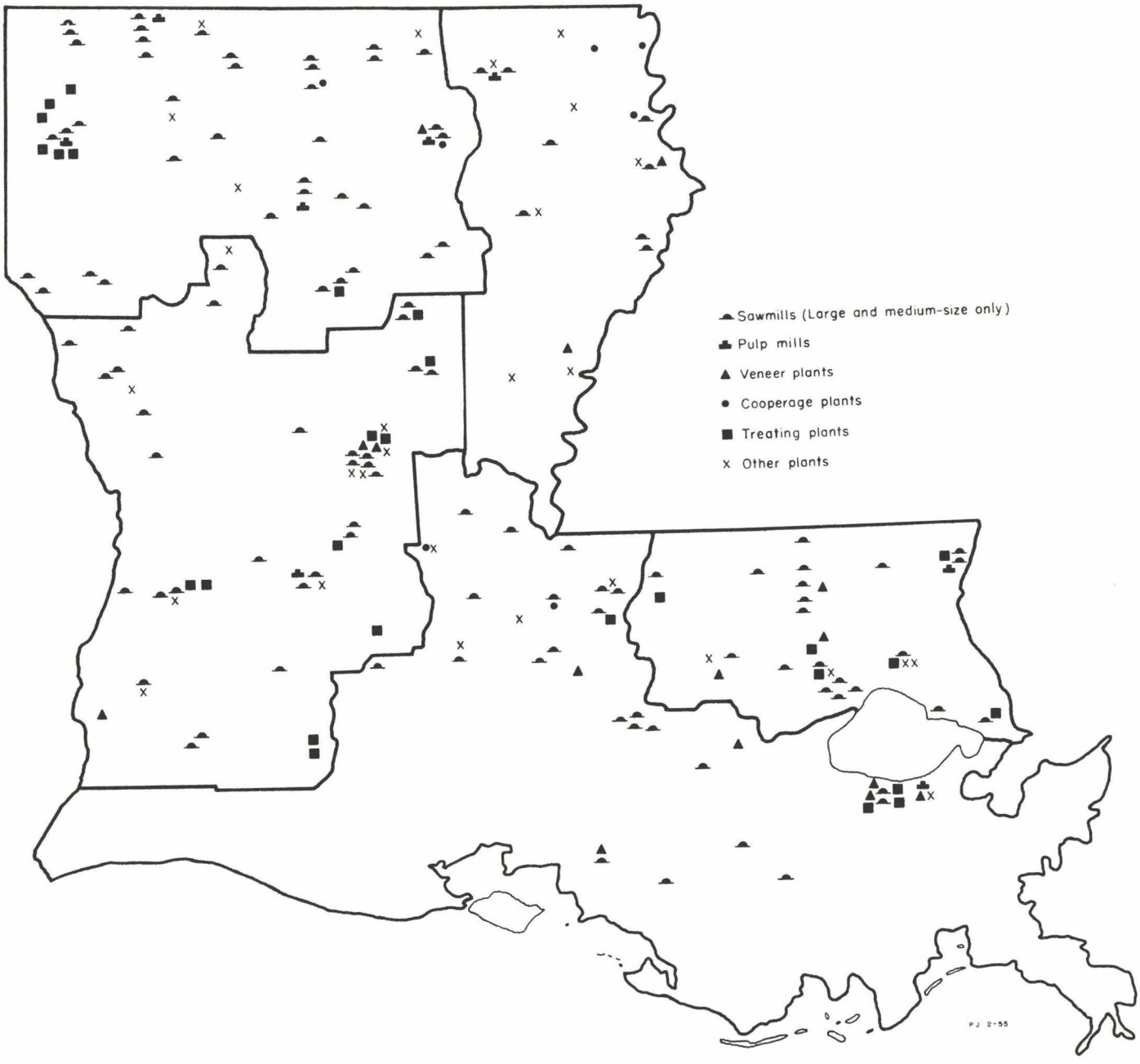

Figure 11.--Location of primary wood-using plants in Louisiana, 1953.

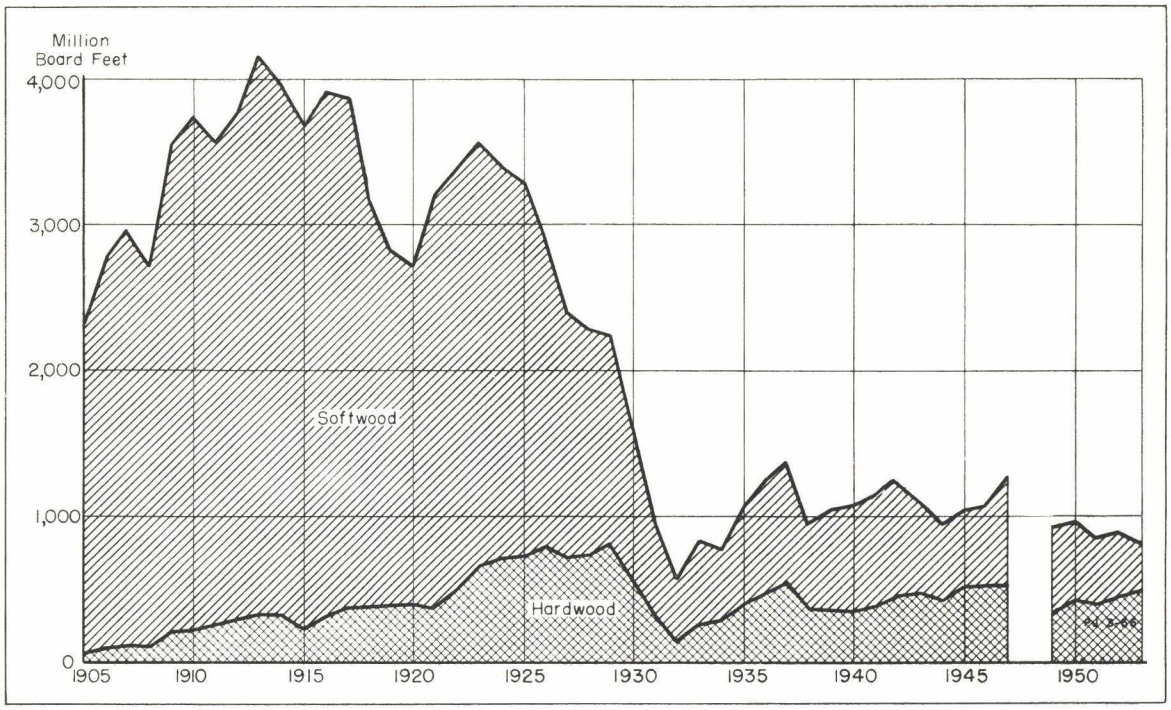

Figure 12. --Lumber production in Louisiana, 1905-53.

made up 50 percent. Pulpwood comprised 62 percent of the Northwest's softwood output in 1953; 40 percent in the Southwest; and 47 percent in the Southeast.

In 1953, for the third straight year, pulpwood output in the State topped one million cords (fig. 13).

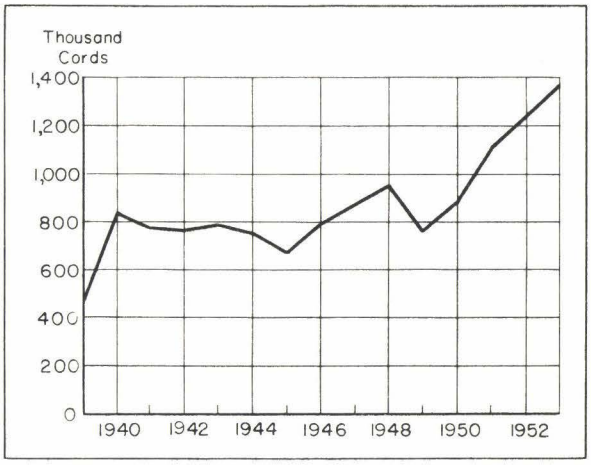

Figure 13. --Pulpwood production in Louisiana, 1939-53.

Use of mechanical log barkers and slab chippers for converting sawmill residues to pulp chips is likely to modify somewhat the future pulpwood-procurement pattern. Louisiana's supply of softwood sawmill residues suitable for pulping is estimated at 150 to 200 thousand cords annually. At least five Louisiana sawmills have recently installed equipment for producing bark-free pulp chips, and more installations seem certain in the near future.

Veneer production climbs.--Louisiana veneer plants turn out chiefly package veneer, for wire-bound crates and the like. The plants are located with reference to available supplies of soft-textured hardwoods, particularly the gums. The total number of Louisiana's veneer plants in 1953 was the same as reported by the Forest Survey in 1937--15 mills--but veneer log output increased 36 percent.

Louisiana's forests supplied 68 million board feet of veneer logs during 1953, nearly 3 percent of the total timber production. All the veneer was hardwood; three-fifths was sweet-, black-, and tupelo gum.

Cooperage output declines.--The keen competition facing the cooperage industry from other forms of containers is partially reflected in the decline of cooperage production. The 1953 output of cooperage logs and bolts was 90 percent less than in 1937. Active plants also declined in number--from 33 to 7. Most cooperage outfits are in the Delta, where hardwoods of suitable quality are available.

Cooperage logs and bolts cut in Louisiana totaled 5.5 million board feet in 1953. Tight cooperage, largely white oak, made up 56 percent of the production. Sweetgum provided nine-tenths of the slack cooperage.

Fuelwood a major product.--Wood for fuel is still a major product in terms of volume, but its use has been decreasing. The 761 thousand cords cut in 1953 accounted for 16 percent of Louisiana's total output of timber. In 1937, the Forest Survey estimated fuelwood production at 2.4 million cords, or 34 percent of the timber output.

All other products cut in 1953 furnished only 8 percent of Louisiana's timber output. Of these, pine poles and piling were the leading items.

Resinous stumpwood use increases.--Removal of resinous stumpwood of old-growth longleaf and slash pines for wood naval stores totaled 411 thousand tons in 1953; nearly 10 thousand tons of old-growth topwood were also used. In 1937 stumpwood removal was estimated at 90 thousand tons plus 19 thousand tons of topwood. Wood naval stores plants increased during this period from 3 to 7.

Most of the stumpwood pulled in Louisiana is used within the State, but Mississippi firms also draw some tonnage.

Louisiana's supply of resinous stumpwood is estimated by the Forest Survey at 5.1 million tons, assuming "push-dozer" removal. At the time of the initial Survey, tonnage was roughly 7.5 million, on a "blasting" basis.

Three-fourths of the total stumpwood supply, some 3.8 million tons, is estimated to be presently available. Removal of the remaining tonnage, classified as potential, would damage growing timber if done at present.

Planted pines--

Yield pulpwood in two decades.

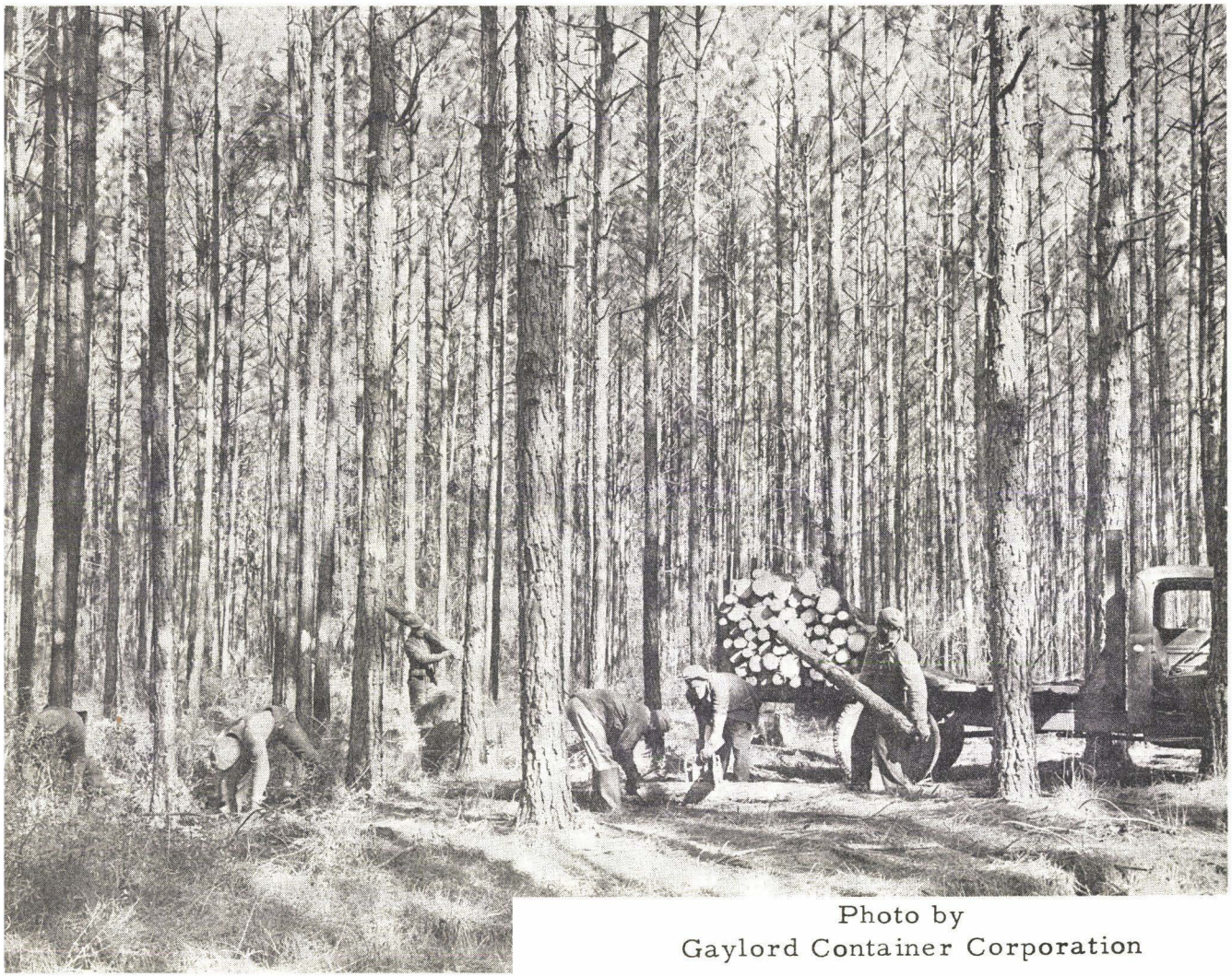

Photo by
Gaylord Container Corporation

LOUISIANA'S FORESTS AND THE FUTURE

The strides made by forestry in Louisiana during the past two decades are mirrored in the findings of the Forest Survey. The current trend toward increased stocking and timber growth is the best indication that the resource can be improved. But the Survey also shows that the job has just begun; the upward trend must continue if Louisiana is to realize the full potential output of its forest lands.

Much of the improvement has occurred in localities with considerable acreage in large holdings--a development influenced by such pioneers in industrial forestry as the Urania Lumber Company and the Great Southern Lumber Company, now Gaylord Container Corporation. A case in point is the Northwest region. In a 7-parish area in the eastern portion of this region, where 40 percent of the forest land is in large holdings, pine growing stock increased 26 percent in the 19 years between Surveys (fig. 14). But in the rest of the Northwest farm woodlands and other small holdings predominate--here pine growing stock dropped 35 percent.

As figure 14 shows, somewhat comparable increases and decreases are to be noted in the other upland regions. These changes also seem to be associated with size of ownership and interest displayed in improved forest management. They are of course modified by variations in prevailing forest types and degree of stocking, frequency and severity of fire, and, in some parishes, presence at the time of the first Survey of large sawmills still liquidating original-growth timber.

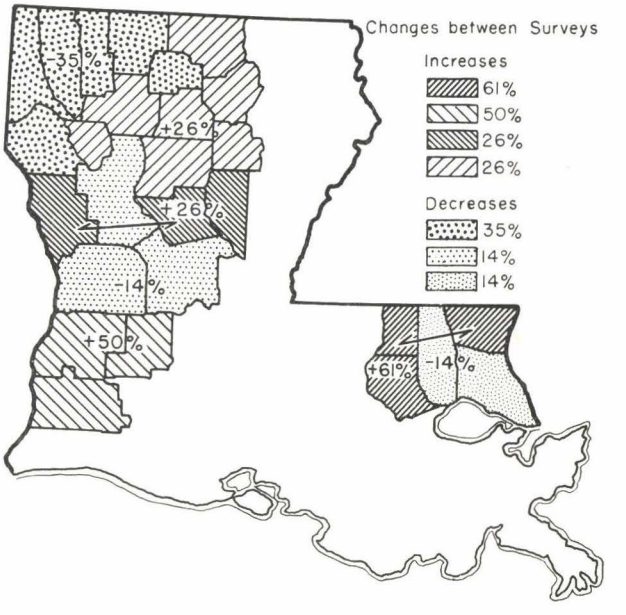

Figure 14.--Pine growing-stock changes between Surveys, by parish groups.

In the Delta, which includes some of the inherently most productive hardwood sites in the South, very little of the forest has been placed under management. At the time of the first Survey the

Too much of Louisiana's future payroll still goes up in smoke.

(Photo by Elemore Morgan)

Delta forests still had a considerable amount of old-growth hardwood. The better part of this remaining old-growth has since been harvested. At present, the heaviest timber stocking is in the belt of parishes--from Madison to St. Charles--that flank the Mississippi River.

In brief, Louisiana's main forest problems are to further build up the stocking of pine timber and to get more of the Delta hardwoods under management. The most necessary measures are (1) to intensify protection from wildfire, (2) to plant the idle acreage in the uplands, (3) to remove the tremendous number of cull hardwoods, and (4) to improve the character of management on small ownerships.

Wildfire still a serious problem. --Louisiana has made outstanding progress in developing an effective fire protection system. The area under organized State protection has gradually been extended to more than 11 million acres and now includes all pine lands. Many of the larger owners have heavily supplemented this public system with measures of their own.

Though fire-protection progress has been substantial, wildfire is still a serious problem. Some 3 million acres, largely North Delta hardwood lands, are without organized public protection. However, landowner interest in the North Delta is increasing and organized protection of this area may soon be feasible. Louisiana has an additional one million forest acres that are not considered to need public protection; these are in the South Delta where the water table is prevailingly high and settlement is sparse.

In areas already under organized protection, there is need for further strengthening of fire fighting forces in order to cope with periods of above-average fire hazard.

But efficient fire-control methods cannot alone reduce serious fire losses. Full cooperation in fire prevention from local residents is also required. Virtually all forest fires in Louisiana are man-caused--either by arson or carelessness--and therefore preventable.

Planting can help. --As one phase of the Forest Survey, a study was made of areas in need of pine planting. Planting and perhaps seeding southern pines offers the surest and quickest way to rebuild depleted stands on upland sites with inadequate pine seed sources.

Louisiana's area of present and potential pine sites--i.e., all the forested uplands except areas in desirable hardwoods such as

Young pines grow rapidly when overtopping cull hardwoods are deadened.

yellow-poplar, cherrybark oak, and magnolia--totals 9 million acres. Though a half million acres have been planted, there still remain nearly 2.8 million acres with both an inadequate pine seed source and inadequate pine stocking. For full stocking of pine, part of this area requires complete planting, part reinforcement planting.

The largest acreage in need of planting is in the longleaf pine belt of the Southwest region. This region contains over half the State's total area in need of pine planting--some 1.6 million acres concentrated in and around Beauregard and Vernon Parishes.

TSI needs loom large.--More than 6 million acres of Louisiana pine sites need timber stand improvement work to eliminate undesirable hardwoods. On many large industrial holdings, intensive hardwood control programs have been under way for several years. But over most of the State, control of weed hardwoods is still a big job.

The Forest Survey classified all pine sites to determine whether a hardwood problem existed--i.e., whether more than one-fifth of the growing space was occupied by hardwoods. Since the nature of control work varies with the size of the hardwoods and the adequacy of pine stocking, these factors were also noted. Hardwood size classes were: small, 2 inches d.b.h. or less; medium, 3 to 9 inches d.b.h.; large, 10 inches d.b.h. or over.

Thirty-two percent of the area in pine sites was found to have no hardwood problem. But 19 percent was encumbered with small hardwoods, 24 percent with medium-size hardwoods, and 25 percent with large hardwoods. Thus, seven-tenths of the acreage in pine sites needs some kind of TSI; in this category 2 million acres are adequately stocked with pine and should be treated before the pines are crowded out.

Control of small hardwoods on pine sites may entail use of mechanical brush cutters, prescribed burning, or perhaps other techniques; medium-size hardwoods will generally require use of sprout-inhibiting chemicals; and large hardwoods will usually need only girdling.

Considerable TSI work is needed on hardwood sites too. Culls and undesirable hardwoods of smaller size make up close to three-tenths of the basal area of all live trees on hardwood sites. These trees occupy growing space that might better be used by thrifty, merchantable hardwoods or by new stands of seedlings.

Future possibilities. --There is little doubt that minimizing wildfire, planting the idle acres, and removing the cull trees would come close to doubling timber growth in Louisiana within the next two decades.

Still further increases could be achieved by strengthening forest research, intensifying protection from insects and disease, improving cutting practices, and making fuller use of harvested trees. In the longleaf pine area, there is the special need for keeping free-ranging woods hogs out of young stock.

Many forest owners, both large and small, are already diligently improving their harvesting and utilization practices, as well as intensifying protection of their timber. In general, the larger owners have been more ready and are better equipped to undertake these jobs than small owners. Since farm woodlands and other small holdings are an important timber source, both the public and the wood-using industries have a big stake in improving their productivity.

ACCURACY OF THE SURVEY

The 1953-54 data on forest acreage and timber volume were secured by a systematic sampling method involving a forest-nonforest classification on aerial photographs and on-the-ground measurement of quarter-acre sample plots. The sample plots were taken in pairs at and near the intersections of a grid of east-west and north-south lines spaced three miles apart. Furthermore, in all parishes of the Northwest, Southwest, and Southeast regions except four 3/, the number of sample plots was increased where necessary in order to approach a sampling error of plus or minus 10 percent (two chances out of three) for the parish estimates of total growing stock volume. Due to the variability encountered, however, the estimates for total cubic volume in these parishes will be found to vary from about plus or minus 7 percent to 15 percent. In all regions, grouping parishes will greatly strengthen the total volume data and will be necessary to provide reliable estimates of species-group breakdowns of volume. For the latter purpose, groups of parishes containing a million acres or more of forest land are recommended.

Accuracy of the estimates may be affected by two types of error. The first stems from the use of a sample to estimate the whole and from variability of the items being sampled. This type is termed sampling error; it is susceptible to a mathematical evaluation of the probability of error. The second type of error derives from human mistakes in measurement, judgment, arithmetic, or recording, and from limitations of method or equipment. Effects of this second type of error--often referred to as reporting and estimating error--cannot be appraised mathematically, but the Forest Survey constantly attempts to hold such error to a minimum by proper training and good supervision, and by emphasis on careful work.

Statistical analysis of the data, using random-sampling formulas, indicates a sampling error of plus or minus 0.3 percent for the State estimate of total forest area, 1.6 percent for total cubic-foot volume, and 1.9 percent for total board-foot volume. However, because a systematic sample is generally more efficient than a random sample of the same size, these estimates of sampling error may be considered as setting an upper limit of error, rather than as expressing the actual

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3/ Except for East Baton Rouge, East Feliciana, Evangeline, and Jefferson Davis.

probability of error. As the acreage and volumes for the State are broken down by Survey region, parish, forest type, species, and other subdivisions of the data, the possibility of error increases and is greatest for the smallest items. The order of this increase is suggested in the following tabulation, which shows the sampling error to which the estimates may be liable two chances out of three.

Forest area		Cubic volume		Board-foot volume	
Size of area sampled	Maximum sampling error	Volume sampled	Maximum sampling error	Volume sampled	Maximum sampling error
M acres	Percent	Million cu. ft.	Percent	Million bd. ft.	Percent
16,000	0.3	12,000	1.6	45,000	1.9
10,000	.4	6,000	2.3	20,000	2.9
5,000	.5	3,000	3.2	10,000	4.0
2,000	.9	1,000	5.6	5,000	5.7
500	1.7	500	7.9	2,000	9.0
100	3.8	100	17.6	300	23.4

Growth estimates are based on radial-growth measurements and mortality data taken on the sample plots. No attempt was made to calculate sampling error in these estimates.

Estimates of annual cut are conversions of production estimates. Commercial log and bolt production, other than production from sawmills which cut less than 3 million board feet of lumber in 1953, was obtained by a 100-percent canvass of establishments or producers. Production from the sawmills that cut less than 3 million board feet was estimated from a sample of these mills. Production of wood for fuel, fence-posts, and miscellaneous domestic use on farms was estimated from an area sample. The data on production of each commodity were converted to annual cut of growing stock by using timber cut-to-production ratios derived from measurements taken on sample cutting areas. The sampling error to which the State cubic-foot estimates of annual cut are liable, on a probability of two chances out of three, are found in the tabulation on the following page.

Product	Sampling error of annual cut
	Percent error
Sawlogs	5.0
Veneer	11.4
Cooperage	7.2
Pulpwood	2.2
Fuelwood	29.3
Poles and piling	11.7
Posts	17.2
Hewn ties	6.9
Misc. logs and bolts	6.9
All commodities	3.8

In computing the changes that took place between 1934-35 and 1953-54, the data from the first Forest Survey were adjusted to make them as closely comparable as possible to data from the second Survey. This was necessary because of certain basic differences between the two sets of data. For example, published estimates from the first Survey were based on a total land area of 29,061,800 acres in Louisiana. Since then, more accurate measurement by the U. S. Bureau of the Census has established a revised figure of 28,903,700 acres. Thus, while actual land area has changed little, if at all, the lower estimate of land acreage has decreased forest-area and timber-volume estimates in like proportion. Again, the minimum diameter limit for hardwood sawtimber trees was dropped from 13.0 inches d.b.h. on the first Survey to 11.0 inches on the second Survey, in line with changing utilization practices.

In addition to these major points, a number of procedural differences between the two Surveys had to be taken into account. In every case, the data from the first Survey were adjusted to conform to the standards of the second Survey before the change was computed.

The sampling error in the data on change in forest acreage and timber volume cannot be estimated. In the 1934-35 Survey, sample plots were spaced one-eighth mile apart on lines 10 miles apart. An estimate of sampling error was not made. However, the error in the estimate of the State forest acreage was probably very small, as it is for the second Survey; and the indicated change in total forest acreage may be considered essentially correct. Indicated changes for Survey regions and other portions of the total acreage should be valued in proportion to the magnitude of the item and of the change. Changes in timber volume, because of the possible effect of nonsampling as well as sampling errors, are shown only for major groupings of the data.

Table 7.-- Forest and nonforest land by Survey region, 1953-54

Land use	State of Louisiana	North Delta	South Delta	North-west	South-west	South-east
			Thousand acres			
Forest:						
Commercial	16,038.0	2,171.3	2,819.6	4,169.8	4,874.5	2,002.8
Noncommercial:						
Productive-reserved	84.3	0.4	0.9	0.5	81.7	0.8
Unproductive	6.6	...	6.6	...	...	...
Total forest	16,128.9	2,171.7	2,827.1	4,170.3	4,956.2	2,003.6
Nonforest[1/]	12,774.8	1,375.2	6,882.4	1,817.5	1,902.0	797.7
All land	28,903.7	3,546.9	9,709.5	5,987.8	6,858.2	2,801.3

1/ Includes some acreage classifiable as water according to Survey standards of area classification but defined by the Bureau of Census as land.

Table 8.--Commercial forest land by class of ownership, 1953-54

Class of ownership	Commercial forest	
	Thousand acres	Percent
Private:		
Farm	3,189.1	19.9
Other	12,000.5	74.8
Total private	15,189.6	94.7
Public:		
National forest	535.8	3.4
Other federal	131.6	.8
State	176.1	1.1
County and municipal	4.9	(1/)
Total public	848.4	5.3
All ownerships	16,038.0	100.0

1/ Negligible.

Table 9.--Land area and commercial forest by parish, 1953-54

Parish	All land	Commercial forest		Parish	All land	Commercial forest	
	Thousand acres	Thousand acres	Percent		Thousand acres	Thousand acres	Percent
Acadia	423.7	81.5	19.2	Morehouse	514.6	343.4	66.7
Allen	496.0	351.6	70.9	Natchitoches	830.0	623.4	75.1
Ascension	192.0	94.6	49.3	Orleans	127.4	15.3	12.0
Assumption	228.5	132.6	58.0	Ouachita	410.9	283.1	68.9
Avoyelles	528.6	320.9	60.7	Plaquemines	629.8	24.4	3.9
Beauregard	757.8	679.8	89.7	Point Coupee	361.0	203.6	56.4
Bienville	528.6	376.5	71.2	Rapides	850.5	645.0	75.8
Bossier	538.2	351.9	65.4	Red River	264.3	141.5	53.5
Caddo	570.2	290.3	50.9	Richland	368.6	154.0	41.8
Calcasieu	706.6	264.5	37.4	Sabine	658.6	556.6	84.5
Caldwell	352.0	293.7	83.4	St. Bernard	326.4	23.0	7.0
Cameron	924.1	(1/)	(1/)	St. Charles	194.6	64.0	32.9
Catahoula	468.5	364.3	77.8	St. Helena	268.8	212.9	79.2
Claiborne	490.2	294.6	60.1	St. James	159.4	85.4	53.6
Concordia	453.8	352.8	77.7	St. John the Baptist	144.0	85.4	59.3
DeSoto	571.6	359.8	62.9	St. Landry	595.2	266.3	44.7
East Baton Rouge	295.7	162.2	54.9	St. Martin	461.4	311.5	67.5
East Carroll	276.5	147.4	53.3	St. Mary	387.2	112.3	29.0
East Feliciana	290.6	170.0	58.5	St. Tammany	581.1	429.8	74.0
Evangeline	430.1	216.6	50.4	Tangipahoa	513.9	371.6	72.3
Franklin	414.7	165.9	40.0	Tensas	398.7	246.0	61.7
Grant	428.8	366.5	85.5	Terrebonne	890.2	111.0	12.5
Iberia	376.3	118.0	31.4	Union	579.9	462.8	79.8
Iberville	401.9	274.1	68.2	Vermilion	783.4	1/40.2	1/5.1
Jackson	373.1	311.1	83.4	Vernon	870.4	714.8	82.1
Jefferson	261.8	37.6	14.4	Washington	425.6	290.7	68.3
Jefferson Davis	421.1	87.6	20.8	Webster	400.6	262.5	65.5
Lafayette	181.1	13.0	7.2	West Baton Rouge	128.6	71.4	55.5
Lafourche	740.5	150.7	20.4	West Carroll	227.8	101.6	44.6
LaSalle	408.3	368.1	90.2	West Feliciana	262.4	182.8	69.7
Lincoln	300.2	179.2	59.7	Winn	608.0	562.8	92.6
Livingston	425.6	365.6	85.9				
Madison	423.7	295.9	69.8	All parishes	28,903.7	16,038.0	55.5

1/ Cameron Parish is included in Vermilion.

Table 10.-- Commercial forest land by stand size and forest type, by Survey region, 1953-1954

Forest type	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas 1/
	Thousand acres					
STATE OF LOUISIANA						
Softwood types:						
Longleaf-slash pine	1,966.8	60.2	146.5	320.6	268.1	1,171.4
Loblolly-shortleaf pine	4,011.5	921.3	1,183.8	1,137.9	673.8	94.7
Oak-pine	1,855.7	318.1	411.3	770.3	316.9	39.1
Total	7,834.0	1,299.6	1,741.6	2,228.8	1,258.8	1,305.2
Hardwood types:						
Oak-hickory	1,601.9	356.1	246.5	760.1	203.8	35.4
Elm-ash-cottonwood	703.0	190.2	138.0	245.6	103.5	25.7
Oak-gum-cypress	5,899.1	2,403.1	1,012.8	1,695.4	494.9	292.9
Total	8,204.0	2,949.4	1,397.3	2,701.1	802.2	354.0
All types	16,038.0	4,249.0	3,138.9	4,929.9	2,061.0	1,659.2
NORTH DELTA						
Softwood types:						
Longleaf-slash pine	...	...	...	...	...	...
Loblolly-shortleaf pine	77.7	42.6	22.1	13.0	...	...
Oak-pine	90.6	21.6	22.4	37.2	9.4	...
Total	168.3	64.2	44.5	50.2	9.4	...
Hardwood types:						
Oak-hickory	70.2	23.7	6.9	29.2	10.4	...
Elm-ash-cottonwood	94.9	38.5	12.5	20.2	17.4	6.3
Oak-gum-cypress	1,837.9	923.1	246.5	456.2	117.0	95.1
Total	2,003.0	985.3	265.9	505.6	144.8	101.4
All types	2,171.3	1,049.5	310.4	555.8	154.2	101.4
SOUTH DELTA						
Softwood types:						
Longleaf-slash pine	...	...	...	...	...	...
Loblolly-shortleaf pine	71.7	12.0	17.8	21.4	20.5	...
Oak-pine	26.0	...	9.9	2.7	13.4	...
Total	97.7	12.0	27.7	24.1	33.9	...
Hardwood types:						
Oak-hickory	70.8	32.6	12.5	25.7	...	...
Elm-ash-cottonwood	505.0	132.2	112.2	182.5	73.1	5.0
Oak-gum-cypress	2,146.1	876.4	506.9	532.6	180.5	49.7
Total	2,721.9	1,041.2	631.6	740.8	253.6	54.7
All types	2,819.6	1,053.2	659.3	764.9	287.5	54.7

Forest type	All stand sizes	Large saw-timber	Small saw-timber	Pole timber	Seedling and sapling	Nonstocked and other areas 1/
	Thousand acres					
NORTHWEST						
Softwood types:						
Longleaf-slash pine	69.3	15.8	10.0	29.1	6.3	8.1
Loblolly-shortleaf pine	1,828.4	409.3	477.6	595.1	326.8	19.6
Oak-pine	887.7	138.7	197.4	371.5	170.5	9.6
Total	2,785.4	563.8	685.0	995.7	503.6	37.3
Hardwood types:						
Oak-hickory	656.2	107.9	111.3	352.9	78.9	5.2
Elm-ash-cottonwood	38.8	4.6	...	23.8	4.6	5.8
Oak-gum-cypress	689.4	211.1	98.7	245.2	90.2	44.2
Total	1,384.4	323.6	210.0	621.9	173.7	55.2
All types	4,169.8	887.4	895.0	1,617.6	677.3	92.5
SOUTHWEST						
Softwood types:						
Longleaf-slash pine	1,485.1	35.6	73.3	188.6	140.0	1,047.6
Loblolly-shortleaf pine	1,489.9	357.0	465.9	387.2	217.6	62.2
Oak-pine	550.3	128.0	93.8	225.7	83.9	18.9
Total	3,525.3	520.6	633.0	801.5	441.5	1,128.7
Hardwood types:						
Oak-hickory	576.1	173.7	77.3	232.9	62.0	30.2
Elm-ash-cottonwood	22.3	5.6	2.7	2.8	8.4	2.8
Oak-gum-cypress	750.8	295.1	54.9	250.3	51.3	99.2
Total	1,349.2	474.4	134.9	486.0	121.7	132.2
All types	4,874.5	995.0	767.9	1,287.5	563.2	1,260.9
SOUTHEAST						
Softwood types:						
Longleaf-slash pine	412.4	8.8	63.2	102.9	121.8	115.7
Loblolly-shortleaf pine	543.8	100.4	200.4	121.2	108.9	12.9
Oak-pine	301.1	29.8	87.8	133.2	39.7	10.6
Total	1,257.3	139.0	351.4	357.3	270.4	139.2
Hardwood types:						
Oak-hickory	228.6	18.2	38.5	119.4	52.5	...
Elm-ash-cottonwood	42.0	9.3	10.6	16.3	...	5.8
Oak-gum-cypress	474.9	97.4	105.8	211.1	55.9	4.7
Total	745.5	124.9	154.9	346.8	108.4	10.5
All types	2,002.8	263.9	506.3	704.1	378.8	149.7

1/ Includes areas not classified elsewhere.

Table 11.--Commercial forest land by degree of tree stocking and forest type, by Survey region, 1953-54

Forest type	All stocking	Well stocked	Medium stocked	Poorly stocked	Non-stocked	All stocking	Well stocked	Medium stocked	Poorly stocked	Non-stocked
	Thousand acres					Thousand acres				
	STATE OF LOUISIANA					NORTHWEST				
Softwood types:										
Longleaf-slash pine	1,966.8	225.0	250.2	361.8	1,129.8	69.3	32.8	23.1	5.3	8.1
Loblolly-shortleaf pine	4,011.5	2,500.3	919.8	516.5	74.9	1,828.4	1,224.3	388.2	199.3	16.6
Oak-pine	1,855.7	992.3	576.4	250.9	36.1	887.7	520.4	270.7	87.0	9.6
Total	7,834.0	3,717.6	1,746.4	1,129.2	1,240.8	2,785.4	1,777.5	682.0	291.6	34.3
Hardwood types:										
Oak-hickory	1,601.9	784.8	522.2	267.2	27.7	656.2	341.4	232.7	79.2	2.9
Elm-ash-cottonwood	703.0	366.9	214.1	101.6	20.4	38.8	17.9	9.3	5.8	5.8
Oak-gum-cypress	5,899.1	3,162.2	1,798.1	723.9	214.9	689.4	341.9	204.0	104.7	38.8
Total	8,204.0	4,313.9	2,534.4	1,092.7	263.0	1,384.4	701.2	446.0	189.7	47.5
All types	16,038.0	8,031.5	4,280.8	2,221.9	1,503.8	4,169.8	2,478.7	1,128.0	481.3	81.8
	NORTH DELTA					SOUTHWEST				
Softwood types:										
Longleaf-slash pine	...	...	...	...	...	1,485.1	97.8	137.9	243.4	1,006.0
Loblolly-shortleaf pine	77.7	67.7	10.0	...	...	1,489.9	832.1	362.1	250.3	45.4
Oak-pine	90.6	56.1	34.5	...	...	550.3	285.6	168.4	80.4	15.9
Total	168.3	123.8	44.5	...	...	3,525.3	1,215.5	668.4	574.1	1,067.3
Hardwood types:										
Oak-hickory	70.2	47.5	15.9	6.8	...	576.1	261.3	196.5	93.5	24.8
Elm-ash-cottonwood	94.9	73.6	15.0	2.8	3.5	22.3	5.5	5.7	8.3	2.8
Oak-gum-cypress	1,837.9	1,140.6	506.3	138.8	52.2	750.8	287.9	245.2	132.5	85.2
Total	2,003.0	1,261.7	537.2	148.4	55.7	1,349.2	554.7	447.4	234.3	112.8
All types	2,171.3	1,385.5	581.7	148.4	55.7	4,874.5	1,770.2	1,115.8	808.4	1,180.1
	SOUTH DELTA					SOUTHEAST				
Softwood types:										
Longleaf-slash pine	...	...	...	...	...	412.4	94.4	89.2	113.1	115.7
Loblolly-shortleaf pine	71.7	37.4	29.0	5.3	...	543.8	338.8	130.5	61.6	12.9
Oak-pine	26.0	9.2	10.0	6.8	...	301.1	121.0	92.8	76.7	10.6
Total	97.7	46.6	39.0	12.1	...	1,257.3	554.2	312.5	251.4	139.2
Hardwood types:										
Oak-hickory	70.8	58.7	3.4	8.7	...	228.6	75.9	73.7	79.0	...
Elm-ash-cottonwood	505.0	244.9	178.7	78.9	2.5	42.0	25.0	5.4	5.8	5.8
Oak-gum-cypress	2,146.1	1,167.3	708.8	236.0	34.0	474.9	224.5	133.8	111.9	4.7
Total	2,721.9	1,470.9	890.9	323.6	36.5	745.5	325.4	212.9	196.7	10.5
All types	2,819.6	1,517.5	929.9	335.7	36.5	2,002.8	879.6	525.4	448.1	149.7

Table 12. -- Area of sawtimber stands by stand quality and forest type, by Survey region, 1953-1954

Forest type	All qualities	Fair or better	Poor	All qualities	Fair or better	Poor
	--- Thousand acres ---			--- Thousand acres ---		
	STATE OF LOUISIANA			NORTHWEST		
Softwood types:						
Longleaf-slash pine	206.7	64.5	142.2	25.8	13.1	12.7
Loblolly-shortleaf pine	2,105.1	1,061.7	1,043.4	886.9	511.8	375.1
Oak-pine	729.4	311.7	417.7	336.1	146.5	189.6
Total	3,041.2	1,437.9	1,603.3	1,248.8	671.4	577.4
Hardwood types:						
Oak-hickory	602.6	227.9	374.7	219.2	65.8	153.4
Elm-ash-cottonwood	328.2	161.4	166.8	4.6	2.3	2.3
Oak-gum-cypress	3,415.9	1,968.0	1,447.9	309.8	189.4	120.4
Total	4,346.7	2,357.3	1,989.4	533.6	257.5	276.1
All types	7,387.9	3,795.2	3,592.7	1,782.4	928.9	853.5
	NORTH DELTA			SOUTHWEST		
Softwood types:						
Longleaf-slash pine	...	...	...	108.9	39.7	69.2
Loblolly-shortleaf pine	64.7	51.7	13.0	822.9	407.2	415.7
Oak-pine	44.0	30.6	13.4	221.8	110.3	111.5
Total	108.7	82.3	26.4	1,153.6	557.2	596.4
Hardwood types:						
Oak-hickory	30.6	7.0	23.6	251.0	112.9	138.1
Elm-ash-cottonwood	51.0	36.1	14.9	8.3	2.8	5.5
Oak-gum-cypress	1,169.6	677.3	492.3	350.0	215.8	134.2
Total	1,251.2	720.4	530.8	609.3	331.5	277.8
All types	1,359.9	802.7	557.2	1,762.9	888.7	874.2
	SOUTH DELTA			SOUTHEAST		
Softwood types:						
Longleaf-slash pine	...	...	...	72.0	11.7	60.3
Loblolly-shortleaf pine	29.8	15.4	14.4	300.8	75.6	225.2
Oak-pine	9.9	4.9	5.0	117.6	19.4	98.2
Total	39.7	20.3	19.4	490.4	106.7	383.7
Hardwood types:						
Oak-hickory	45.1	32.6	12.5	56.7	9.6	47.1
Elm-ash-cottonwood	244.4	116.0	128.4	19.9	4.2	15.7
Oak-gum-cypress	1,383.3	845.8	537.5	203.2	39.7	163.5
Total	1,672.8	994.4	678.4	279.8	53.5	226.3
All types	1,712.5	1,014.7	697.8	770.2	160.2	610.0

Table 13.--Basal area per acre of growing stock and cull trees by forest-type group and Survey region, 1953-54

Forest-type group	State of Louisiana	North Delta	South Delta	Northwest	Southwest	Southeast
	Square feet					
Longleaf-slash pine:						
2- and 4-inch good trees[1/]	2.5	...	...	9.6	1.5	5.0
Growing stock	11.2	...	...	36.6	8.6	15.9
2- and 4-inch poor trees	1.4	...	...	5.6	1.3	1.0
Cull trees	2.3	...	...	5.5	1.9	3.4
All trees	17.4	...	...	57.3	13.3	25.3
Loblolly-shortleaf pine:						
2- and 4-inch good trees[1/]	14.6	21.9	9.6	17.0	12.8	11.0
Growing stock	47.3	55.7	37.6	48.2	45.5	49.7
2- and 4-inch poor trees	2.7	5.3	1.3	2.5	3.2	1.2
Cull trees	6.7	5.5	5.3	6.1	7.0	8.5
All trees	71.3	88.4	53.8	73.8	68.5	70.4
Oak-pine:						
2- and 4-inch good trees[1/]	11.2	9.1	9.6	13.1	10.5	7.7
Growing stock	38.7	37.2	31.7	38.5	41.2	35.5
2- and 4-inch poor trees	3.4	4.5	1.3	3.8	3.7	1.7
Cull trees	12.3	11.7	6.7	10.7	13.4	16.0
All trees	65.6	62.5	49.3	66.1	68.8	60.9
All softwood types:						
2- and 4-inch good trees[1/]	10.8	15.0	9.6	15.6	7.7	8.2
Growing stock	36.1	45.8	36.0	44.8	29.3	35.2
2- and 4-inch poor trees	2.5	4.9	1.3	3.0	2.5	1.3
Cull trees	7.0	8.8	5.7	7.5	5.8	8.6
All trees	56.4	74.5	52.6	70.9	45.3	53.3
Oak-hickory:						
2- and 4-inch good trees[1/]	9.2	12.1	6.4	10.0	9.0	7.3
Growing stock	38.0	38.3	51.9	36.5	41.9	28.2
2- and 4-inch poor trees	4.5	2.1	6.2	4.4	5.4	2.5
Cull trees	15.4	14.1	16.5	12.7	16.7	20.2
All trees	67.1	66.6	81.0	63.6	73.0	58.2
Elm-ash-cottonwood:						
2- and 4-inch good trees[1/]	10.8	12.2	10.8	10.4	14.5	4.9
Growing stock	50.1	53.5	51.8	30.8	46.5	41.6
2- and 4-inch poor trees	7.9	8.1	8.5	5.1	8.3	2.9
Cull trees	14.4	10.6	15.4	6.2	2.2	25.5
All trees	83.2	84.4	86.5	52.5	71.5	74.9
Oak-gum-cypress:						
2- and 4-inch good trees[1/]	9.2	8.8	8.8	8.6	9.0	13.5
Growing stock	54.3	48.1	67.0	43.2	47.8	46.7
2- and 4-inch poor trees	5.4	4.5	6.3	5.7	5.9	3.8
Cull trees	20.3	16.8	21.8	18.7	22.6	25.8
All trees	89.2	78.2	103.9	76.2	85.3	89.8
All types						
2- and 4-inch good trees[1/]	10.0	9.5	9.2	13.5	8.1	9.3
Growing stock	43.7	47.9	62.8	43.1	33.7	37.3
2- and 4-inch poor trees	4.0	4.6	6.5	3.7	3.4	2.0
Cull trees	13.0	15.8	19.9	10.2	9.7	14.4
All trees	70.7	77.8	98.4	70.5	54.9	63.0

1/ Includes only sound, well-formed trees.

Table 14. -Total volume by class of timber and species, by Survey region, 1953-1954

Species	All timber 1/	Growing stock			Poletimber trees	Hardwood limbs	Cull trees
		Total growing stock	Sawtimber trees				
			Sawlog portions	Upper stems			
	Thousand cords						
STATE OF LOUISIANA							
Softwood:							
Loblolly pine	34,308	34,157	27,229	1,820	5,108	...	151
Shortleaf pine	10,231	10,203	7,661	522	2,020	...	28
Longleaf pine	4,112	4,104	3,086	264	754	...	8
Slash pine	844	824	444	36	344	...	20
Other pines	811	808	652	44	112	...	3
Other softwoods	8,168	7,354	5,641	659	1,054	...	814
Total	58,474	57,450	44,713	3,345	9,392	...	1,024
Hardwood:							
Red oaks	27,291	19,350	9,705	4,543	5,102	3,217	4,724
White oaks	21,128	15,792	8,068	4,029	3,695	2,529	2,807
Sweetgum	22,400	19,219	9,563	3,797	5,859	850	2,331
Black and tupelo gums	20,102	16,991	8,184	3,539	5,268	880	2,231
Other hardwoods	66,170	45,148	22,928	10,410	11,810	6,026	14,996
Total	157,091	116,500	58,448	26,318	31,734	13,502	27,089
All species	215,565	173,950	103,161	29,663	41,126	13,502	28,113
NORTH DELTA							
Softwood:							
Loblolly pine	859	851	704	43	104	...	8
Shortleaf pine	349	349	300	18	31	...	...
Longleaf pine	...	...	...	...	...	...	...
Slash pine	...	...	...	...	...	...	...
Other pines	...	...	...	...	...	...	...
Other softwoods	323	251	208	23	20	...	72
Total	1,531	1,451	1,212	84	155	...	80
Hardwood:							
Red oaks	4,944	3,590	1,906	893	791	630	724
White oaks	6,120	4,615	2,600	1,346	669	881	624
Sweetgum	3,452	3,013	1,604	636	773	155	284
Black and tupelo gums	359	267	158	72	37	25	67
Other hardwoods	18,932	13,919	7,845	3,559	2,515	2,075	2,938
Total	33,807	25,404	14,113	6,506	4,785	3,766	4,637
All species	35,338	26,855	15,325	6,590	4,940	3,766	4,717
SOUTH DELTA							
Softwood:							
Loblolly pine	445	445	325	28	92	...	...
Shortleaf pine	39	39	12	1	26	...	...
Longleaf pine	2/	2/	...	...	2/	...	...
Slash pine	...	...	...	...	...	...	...
Other pines	13	13	11	1	1	...	...
Other softwoods	5,827	5,359	4,088	482	789	...	468
Total	6,324	5,856	4,436	512	908	...	468
Hardwood:							
Red oaks	4,844	3,600	2,121	981	498	675	569
White oaks	1,980	1,434	809	431	194	300	246
Sweetgum	4,305	3,784	2,023	804	957	179	342
Black and tupelo gums	10,844	9,606	4,353	1,869	3,384	401	837
Other hardwoods	25,419	18,383	9,082	4,025	5,276	2,039	4,997
Total	47,392	36,807	18,388	8,110	10,309	3,594	6,991
All species	53,716	42,663	22,824	8,622	11,217	3,594	7,459

Table 14.--Total volume by class of timber and species, by Survey region, 1953-1954 (continued)

Species	All timber 1/	Growing stock				Hardwood limbs	Cull trees
		Total growing stock	Sawtimber trees		Poletimber trees		
			Sawlog portions	Upper stems			
	Thousand cords						
NORTHWEST							
Softwood:							
Loblolly pine	13,758	13,695	10,728	717	2,250	...	63
Shortleaf pine	6,309	6,293	4,743	311	1,239	...	16
Longleaf pine	489	489	441	28	20	...	...
Slash pine	60	60	...	...	60	...	...
Other pines	...	...	...	...	...	...	...
Other softwoods	834	744	548	64	132	...	90
Total	21,450	21,281	16,460	1,120	3,701	...	169
Hardwood:							
Red oaks	7,626	5,418	2,564	1,190	1,664	811	1,397
White oaks	7,064	5,533	2,729	1,285	1,519	709	822
Sweetgum	6,344	5,431	2,710	1,058	1,663	222	691
Black and tupelo gums	1,709	1,321	728	296	297	94	294
Other hardwoods	8,139	5,043	2,270	1,073	1,700	710	2,386
Total	30,882	22,746	11,001	4,902	6,843	2,546	5,590
All species	52,332	44,027	27,461	6,022	10,544	2,546	5,759
SOUTHWEST							
Softwood:							
Loblolly pine	12,353	12,304	9,952	671	1,681	...	49
Shortleaf pine	3,074	3,063	2,359	169	535	...	11
Longleaf pine	2,537	2,529	1,931	165	433	...	8
Slash pine	215	196	65	7	124	...	19
Other pines	...	...	...	...	...	...	...
Other softwoods	658	577	466	53	58	...	81
Total	18,837	18,669	14,773	1,065	2,831	...	168
Hardwood:							
Red oaks	7,050	4,991	2,410	1,128	1,453	801	1,258
White oaks	4,991	3,613	1,704	851	1,058	545	833
Sweetgum	5,927	5,181	2,481	963	1,737	210	536
Black and tupelo gums	3,257	2,630	1,306	581	743	187	440
Other hardwoods	10,121	6,149	3,031	1,413	1,705	920	3,052
Total	31,346	22,564	10,932	4,936	6,696	2,663	6,119
All species	50,183	41,233	25,705	6,001	9,527	2,663	6,287
SOUTHEAST							
Softwood:							
Loblolly pine	6,893	6,862	5,520	361	981	...	31
Shortleaf pine	460	459	247	23	189	...	1
Longleaf pine	1,086	1,086	714	71	301	...	2/
Slash pine	569	568	379	29	160	...	1
Other pines	798	795	641	43	111	...	3
Other softwoods	526	423	331	37	55	...	103
Total	10,332	10,193	7,832	564	1,797	...	139
Hardwood:							
Red oaks	2,827	1,751	704	351	696	300	776
White oaks	973	597	226	116	255	94	282
Sweetgum	2,372	1,810	745	336	729	84	478
Black and tupelo gums	3,933	3,167	1,639	721	807	173	593
Other hardwoods	3,559	1,654	700	340	614	282	1,623
Total	13,664	8,979	4,014	1,864	3,101	933	3,752
All species	23,996	19,172	11,846	2,428	4,898	933	3,891

1/ Sound volume in dead trees considered salvable is not included. This volume is as follows:

Region	Softwood	Hardwood
	Thousand cords	
North Delta	36	240
South Delta	59	93
Northwest	54	158
Southwest	100	212
Southeast	39	24
Total	288	727

2/ Negligible.

Table 15.-- Total volume by class of timber and species, by Survey region, 1953-1954

Species	All timber[1/]	Growing stock				Hardwood limbs	Cull trees
		Total growing stock	Sawtimber trees		Poletimber trees		
			Sawlog portions	Upper stems			
	Million cubic feet						
STATE OF LOUISIANA							
Softwood:							
Loblolly pine	2,573.1	2,561.8	2,042.2	136.5	383.1	...	11.3
Shortleaf pine	767.3	765.2	574.5	39.2	151.5	...	2.1
Longleaf pine	308.5	307.9	231.5	19.8	56.6	...	.6
Slash pine	63.3	61.8	33.3	2.7	25.8	...	1.5
Other pines	60.8	60.6	48.9	3.3	8.4	...	.2
Other softwoods	612.6	551.5	423.1	49.4	79.0	...	61.1
Total	4,385.6	4,308.8	3,353.5	250.9	704.4	...	1/76.8
Hardwood:							
Red oaks	1,828.4	1,296.4	650.3	304.3	341.8	215.5	316.5
White oaks	1,415.6	1,058.1	540.5	270.0	247.6	169.4	188.1
Sweetgum	1,500.8	1,287.7	640.7	254.4	392.6	57.0	156.1
Black and tupelo gums	1,346.9	1,138.4	548.4	237.0	353.0	59.0	149.5
Other hardwoods	4,433.5	3,025.0	1,536.2	697.6	791.2	403.7	1,004.8
Total	10,525.2	7,805.6	3,916.1	1,763.3	2,126.2	904.6	2/1,815.0
All species	3/14,910.8	12,114.4	7,269.6	2,014.2	2,830.6	904.6	1,891.8
NORTH DELTA							
Softwood:							
Loblolly pine	64.4	63.8	52.8	3.2	7.8	...	0.6
Shortleaf pine	26.2	26.2	22.5	1.4	2.3	...	...
Longleaf pine	...	...	...	...	...	...	...
Slash pine	...	...	...	...	...	...	...
Other pines	...	...	...	...	...	...	...
Other softwoods	24.2	18.8	15.6	1.7	1.5	...	5.4
Total	114.8	108.8	90.9	6.3	11.6	...	6.0
Hardwood:							
Red oaks	331.2	240.5	127.7	59.8	53.0	42.2	48.5
White oaks	410.0	309.2	174.2	90.2	44.8	59.0	41.8
Sweetgum	231.3	201.9	107.5	42.6	51.8	10.4	19.0
Black and tupelo gums	24.1	17.9	10.6	4.8	2.5	1.7	4.5
Other hardwoods	1,268.5	932.6	525.6	238.5	168.5	139.0	196.9
Total	2,265.1	1,702.1	945.6	435.9	320.6	252.3	310.7
All species	2,379.9	1,810.9	1,036.5	442.2	332.2	252.3	316.7
SOUTH DELTA							
Softwood:							
Loblolly pine	33.4	33.4	24.4	2.1	6.9	...	...
Shortleaf pine	2.9	2.9	.9	.1	1.9	...	...
Longleaf pine	2/	2/	...	...	2/	...	...
Slash pine	...	...	...	...	...	...	...
Other pines	1.0	1.0	.8	.1	.1	...	...
Other softwoods	437.0	401.9	306.6	36.1	59.2	...	35.1
Total	474.3	439.2	332.7	38.4	68.1	...	35.1
Hardwood:							
Red oaks	324.5	241.2	142.1	65.7	33.4	45.2	38.1
White oaks	132.7	96.1	54.2	28.9	13.0	20.1	16.5
Sweetgum	288.4	253.5	135.5	53.9	64.1	12.0	22.9
Black and tupelo gums	726.6	643.6	291.7	125.2	226.7	26.9	56.1
Other hardwoods	1,703.1	1,231.7	608.5	269.7	353.5	136.6	334.8
Total	3,175.3	2,466.1	1,232.0	543.4	690.7	240.8	468.4
All species	3,649.6	2,905.3	1,564.7	581.8	758.8	240.8	503.5

Table 15.--Total volume by class of timber and species, by Survey region, 1953-1954 (continued)

Species	All timber 1/	Growing stock				Hardwood limbs	Cull trees
		Total growing stock	Sawtimber trees		Poletimber trees		
			Sawlog portions	Upper stems			
	Million cubic feet						
NORTHWEST							
Softwood:							
Loblolly pine	1,031.8	1,027.1	804.6	53.8	168.7	...	4.7
Shortleaf pine	473.2	472.0	355.7	23.3	93.0	...	1.2
Longleaf pine	36.7	36.7	33.1	2.1	1.5	...	...
Slash pine	4.5	4.5	...	...	4.5	...	...
Other pines	...	...	...	...	...	...	...
Other softwoods	62.6	55.8	41.1	4.8	9.9	...	6.8
Total	1,608.8	1,596.1	1,234.5	84.0	277.6	...	12.7
Hardwood:							
Red oaks	510.9	363.0	171.8	79.7	111.5	54.3	93.6
White oaks	473.3	370.7	182.8	86.1	101.8	47.5	55.1
Sweetgum	425.1	363.9	181.6	70.9	111.4	14.9	46.3
Black and tupelo gums	114.5	88.5	48.8	19.8	19.9	6.3	19.7
Other hardwoods	545.3	337.9	152.1	71.9	113.9	47.6	159.8
Total	2,069.1	1,524.0	737.1	328.4	458.5	170.6	374.5
All species	3,677.9	3,120.1	1,971.6	412.4	736.1	170.6	387.2
SOUTHWEST							
Softwood:							
Loblolly pine	926.5	922.8	746.4	50.3	126.1	...	3.7
Shortleaf pine	230.5	229.7	176.9	12.7	40.1	...	.8
Longleaf pine	190.3	189.7	144.8	12.4	32.5	...	.6
Slash pine	16.1	14.7	4.9	.5	9.3	...	1.4
Other pines	...	...	...	...	...	...	...
Other softwoods	49.4	43.3	35.0	4.0	4.3	...	6.1
Total	1,412.8	1,400.2	1,108.0	79.9	212.3	...	12.6
Hardwood:							
Red oaks	472.4	334.4	161.5	75.6	97.3	53.7	84.3
White oaks	334.4	242.1	114.2	57.0	70.9	36.5	55.8
Sweetgum	397.1	347.1	166.2	64.5	116.4	14.1	35.9
Black and tupelo gums	218.2	176.2	87.5	38.9	49.8	12.5	29.5
Other hardwoods	678.1	412.0	203.1	94.7	114.2	61.6	204.5
Total	2,100.2	1,511.8	732.5	330.7	448.6	178.4	410.0
All species	3,513.0	2,912.0	1,840.5	410.6	660.9	178.4	422.6
SOUTHEAST							
Softwood:							
Loblolly pine	517.0	514.7	414.0	27.1	73.6	...	2.3
Shortleaf pine	34.5	34.4	18.5	1.7	14.2	...	.1
Longleaf pine	81.5	81.5	53.6	5.3	22.6	...	2/
Slash pine	42.7	42.6	28.4	2.2	12.0	...	.1
Other pines	59.8	59.6	48.1	3.2	8.3	...	.2
Other softwoods	39.4	31.7	24.8	2.8	4.1	...	7.7
Total	774.9	764.5	587.4	42.3	134.8	...	10.4
Hardwood:							
Red oaks	189.4	117.3	47.2	23.5	46.6	20.1	52.0
White oaks	65.2	40.0	15.1	7.8	17.1	6.3	18.9
Sweetgum	158.9	121.3	49.9	22.5	48.9	5.6	32.0
Black and tupelo gums	263.5	212.2	109.8	48.3	54.1	11.6	39.7
Other hardwoods	238.5	110.8	46.9	22.8	41.1	18.9	108.8
Total	915.5	601.6	268.9	124.9	207.8	62.5	251.4
All species	1,690.4	1,366.1	856.3	167.2	342.6	62.5	261.8

1/ Sound volume in dead trees considered salvable is not included. This volume is as follows:

Region	Softwood	Hardwood
	Million cubic feet	
North Delta	2.7	16.1
South Delta	4.5	6.2
Northwest	4.1	10.6
Southwest	7.4	14.2
Southeast	2.9	1.6
Total	21.6	48.7

2/ Negligible.

Table 16.-- Sawtimber volume and growing stock by species group and parish, 1953-1954

Parish	Growing stock			Sawtimber volume		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	- - - - Million cubic feet- - - -			- - - - - Million board feet - - - -		
Acadia	65.4	15.2	50.2	221.6	52.0	169.6
Allen	241.1	126.6	114.5	937.2	615.6	321.6
Ascension	91.1	13.7	77.4	268.8	60.5	208.3
Assumption	221.5	71.6	149.9	705.8	334.3	371.5
Avoyelles	245.1	19.6	225.5	864.6	75.0	789.6
Beauregard	218.5	106.7	111.8	870.9	494.5	376.4
Bienville	313.3	164.9	148.4	1,292.0	792.7	499.3
Bossier	158.5	66.8	91.7	490.1	265.2	224.9
Caddo	125.4	29.7	95.7	339.4	101.6	237.8
Calcasieu	158.4	61.0	97.4	620.8	284.8	336.0
Caldwell	276.8	141.8	135.0	1,159.7	732.6	427.1
Cameron	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)
Catahoula	298.7	30.9	267.8	1,148.2	163.6	984.6
Claiborne	129.2	58.4	70.8	391.0	209.8	181.2
Concordia	375.6	7.2	368.4	1,442.8	41.6	1,401.2
DeSoto	208.5	111.4	97.1	715.0	422.9	292.1
East Baton Rouge	77.9	10.2	67.7	253.2	54.5	198.7
East Carroll	97.6	...	97.6	300.7	...	300.7
East Feliciana	81.0	38.9	42.1	286.9	181.8	105.1
Evangeline	141.9	43.6	98.3	548.0	213.4	334.6
Franklin	108.3	3.9	104.4	372.6	19.5	353.1
Grant	287.5	177.2	110.3	1,181.1	886.3	294.8
Iberia	90.8	13.0	77.8	258.1	48.1	210.0
Iberville	349.6	31.3	318.3	1,154.9	149.7	1,005.2
Jackson	342.1	191.1	151.0	1,520.2	965.5	554.7
Jefferson	17.3	5.7	11.6	60.9	27.8	33.1
Jefferson Davis	59.1	27.3	31.8	235.2	142.4	92.8
Lafayette	6.8	.1	6.7	24.3	.2	24.1
Lafourche	187.4	38.7	148.7	656.7	188.4	468.3
LaSalle	274.4	122.4	152.0	1,083.3	590.6	492.7
Lincoln	97.2	42.3	54.9	328.6	168.3	160.3
Livingston	447.2	260.9	186.3	1,869.5	1,313.0	556.5
Madison	286.5	1.2	285.3	1,067.8	6.4	1,061.4

Table 16.-- Sawtimber volume and growing stock by species group and parish, 1953-1954 (continued)

Parish	Growing stock			Sawtimber volume		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	Million cubic feet			Million board feet		
Morehouse	259.2	64.4	194.8	994.1	329.5	664.6
Natchitoches	351.4	177.8	173.6	1,312.9	821.9	491.0
Orleans	2.6	1.0	1.6	6.4	1.6	4.8
Ouachita	228.9	66.2	162.7	875.2	319.3	555.9
Plaquemines	10.6	...	10.6	25.7	...	25.7
Point Coupee	243.2	6.9	236.3	955.5	33.8	921.7
Rapides	389.7	137.3	252.4	1,499.9	675.5	824.4
Red River	96.5	51.2	45.3	392.0	246.9	145.1
Richland	81.5	0.5	81.0	284.8	2.7	282.1
Sabine	510.5	290.5	220.0	2,092.9	1,420.6	672.3
St. Bernard	9.1	1.7	7.4	18.5	5.1	13.4
St. Charles	68.6	14.8	53.8	242.9	71.3	171.6
St. Helena	154.1	115.0	39.1	598.4	523.4	75.0
St. James	126.1	21.2	104.9	389.6	98.5	291.1
St. John the Baptist	119.8	23.1	96.7	376.3	116.3	260.0
St. Landry	218.3	25.5	192.8	727.4	109.2	618.2
St. Martin	267.4	52.0	215.4	757.7	226.7	531.0
St. Mary	94.7	16.6	78.1	310.0	71.9	238.1
St. Tammany	228.9	120.0	108.9	866.1	533.9	332.2
Tangipahoa	196.4	94.7	101.7	733.8	438.8	295.0
Tensas	223.9	.4	223.5	829.9	...	829.9
Terrebonne	111.9	32.8	79.1	346.4	136.0	210.4
Union	391.7	214.8	176.9	1,566.7	1,007.2	559.5
Vermilion	1/54.8	1/9.9	1/44.9	1/204.5	1/52.7	1/151.8
Vernon	279.5	129.8	149.7	1,003.3	533.5	469.8
Washington	180.6	124.8	55.8	650.5	516.5	134.0
Webster	154.6	54.2	100.4	525.7	217.5	308.2
West Baton Rouge	100.5	...	100.5	353.8	...	353.8
West Carroll	79.6	.3	79.3	283.4	1.2	282.2
West Feliciana	202.7	24.8	177.9	835.0	114.4	720.6
Winn	597.4	403.3	194.1	2,670.4	2,070.6	599.8
All parishes	12,114.4	4,308.8	7,805.6	45,399.6	20,299.1	25,100.5

1/ Cameron Parish is included in Vermilion.

Table 17. -- Growing stock by species and Survey region, 1953-54

Species	State of Louisiana	North Delta	South Delta	Northwest	Southwest	Southeast
			Million cubic feet			
Softwood:						
Loblolly pine	2,561.8	63.8	33.4	1,027.1	922.8	514.7
Shortleaf pine	765.2	26.2	2.9	472.0	229.7	34.4
Longleaf pine	307.9	...	(1/)	36.7	189.7	81.5
Slash pine	61.8	...	...	4.5	14.7	42.6
Other pines	60.6	...	1.0	...	...	59.6
Cypress	550.2	18.8	401.9	55.5	42.3	31.7
Other softwoods	1.3	...	...	.3	1.0	...
Total	4,308.8	108.8	439.2	1,596.1	1,400.2	764.5
Hardwood:						
Black, scarlet, and southern red oaks	296.1	11.7	5.2	144.8	108.3	26.1
Cherrybark, Shumard, and northern red oaks	125.8	16.3	27.4	35.6	39.5	7.0
Water oaks	874.5	212.5	208.6	182.6	186.6	84.2
White oak (Q. alba)	261.3	18.3	1.1	126.1	104.2	11.6
Other white oaks	796.8	290.9	95.0	244.6	137.9	28.4
Pecan	572.0	295.8	178.8	36.6	58.3	2.5
Other hickories	198.2	15.4	10.1	90.3	75.0	7.4
Sweetgum	1,287.7	201.9	253.5	363.9	347.1	121.3
Black and tupelo gums	1,138.4	17.9	643.6	88.5	176.2	212.2
Cottonwood	87.8	35.9	41.4	9.3	.1	1.1
Willow	477.1	65.3	384.0	10.9	11.9	5.0
Soft maples	121.8	5.4	78.4	11.0	14.3	12.7
Yellow-poplar	15.7	1.0	2.0	.2	1.3	11.2
Sweetbay and magnolia	76.1	3.7	6.8	14.1	31.3	20.2
Elm	397.7	202.5	93.4	54.4	37.0	10.4
Ash	485.9	101.6	265.8	31.7	67.2	19.6
Hackberry	252.3	108.3	120.7	11.5	11.2	.6
Beech	150.4	9.7	4.9	45.8	78.6	11.4
Sycamore	40.1	18.7	11.1	1.6	7.4	1.3
Other hardwoods	149.9	69.3	34.3	20.5	18.4	7.4
Total	7,805.6	1,702.1	2,466.1	1,524.0	1,511.8	601.6
All species	12,114.4	1,810.9	2,905.3	3,120.1	2,912.0	1,366.1

1/ Negligible.

Table 18.--Distribution of growing stock by species within each forest type, 1953-54

Species	All types	Longleaf-slash pine	Loblolly-shortleaf pine	Oak-pine	Oak-hickory	Elm-ash-cottonwood	Oak-gum-cypress
				Percent			
Softwood:							
Loblolly pine	21.2	7.3	59.2	25.1	6.1	(1/)	0.8
Shortleaf pine	6.4	2.0	18.4	6.8	1.1	.1	(1/)
Longleaf pine	2.5	70.7	1.1	.8	.2	...	(1/)
Slash pine	.5	13.5	.1	.8	...	...	(1/)
Other pines	.5	...	.6	2.1	.8	.3	.1
Other softwoods	4.5	.3	(1/)	.3	.5	4.3	9.6
Total	35.6	93.8	79.4	35.9	8.7	4.7	10.5
Hardwood:							
Black, scarlet and southern red oaks	2.4	3.2	3.3	8.0	6.1	...	.2
Cherrybark, Shumard and northern red oaks	1.0	...	.5	2.1	3.0	(1/)	1.0
Water oaks	7.3	.3	1.2	8.2	11.4	.5	11.4
White oak (Q. alba)	2.2	.1	2.3	6.8	7.6	(1/)	.4
Other white oaks	6.6	.8	3.2	7.4	8.0	.4	9.5
Pecan	4.8	...	(1/)	.2	.9	2.6	10.1
Other hickories	1.6	.3	1.3	4.2	7.2	(1/)	.5
Sweetgum	10.7	1.1	5.4	14.6	19.4	2.1	13.2
Black and tupelo gums	9.4	.3	1.5	4.6	7.7	2.9	17.4
Cottonwood	.7	...	...	...	(1/)	11.7	.3
Willow	3.9	...	(1/)	.1	.1	61.0	2.0
Maple	1.0	(1/)	.2	.5	1.3	1.1	1.8
Yellow-poplar	.1	(1/)	.1	.2	.7	...	.1
Sweetbay and magnolia	.6	(1/)	.3	1.3	3.2	(1/)	.3
Elm	3.3	...	.3	1.4	2.5	1.9	6.3
Ash	4.0	(1/)	.3	1.0	2.0	7.2	7.5
Hackberry	2.1	...	...	(1/)	.3	.8	4.6
Beech	1.2	...	.6	2.8	8.3	(1/)	.3
Sycamore	.3	...	(1/)	.1	.4	2.1	.4
Other hardwoods	1.2	.1	.1	.6	1.2	1.0	2.2
Total	64.4	6.2	20.6	64.1	91.3	95.3	89.5
All species	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Negligible.

Table 19. -- Growing stock by species and stand size, by Survey region, 1953-1954

Species	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas[1]
	Million cubic feet					
STATE OF LOUISIANA						
Softwood:						
Loblolly pine	2,561.8	1,127.2	995.2	374.7	54.7	10.0
Shortleaf pine	765.2	267.2	346.6	132.0	18.3	1.1
Longleaf pine	307.9	51.3	120.7	76.4	20.4	39.1
Slash pine	61.8	5.4	29.5	21.8	4.5	.6
Other pines	60.6	26.8	26.8	5.9	1.1	...
Other softwoods	551.5	268.8	196.5	72.7	9.1	4.4
Total	4,308.8	1,746.7	1,715.3	683.5	108.1	55.2
Hardwood:						
Red oaks	1,296.4	657.3	293.2	305.0	28.1	12.8
White oaks	1,058.1	593.2	206.9	217.9	23.4	16.7
Sweetgum	1,287.7	616.2	303.1	325.3	37.7	5.4
Black and tupelo gums	1,138.4	526.6	409.6	188.9	9.5	3.8
Other hardwoods	3,025.0	1,801.4	578.4	570.5	50.4	24.3
Total	7,805.6	4,194.7	1,791.2	1,607.6	149.1	63.0
All species	12,114.4	5,941.4	3,506.5	2,291.1	257.2	118.2
NORTH DELTA						
Softwood:						
Loblolly pine	63.8	33.9	21.7	8.1	.1	...
Shortleaf pine	26.2	15.9	9.5	.8	...	...
Longleaf pine	...	...	...	...	...	...
Slash pine	...	...	...	...	...	...
Other pines	...	...	...	...	...	...
Other softwoods	18.8	14.7	.2	3.1	.2	.6
Total	108.8	64.5	31.4	12.0	.3	.6
Hardwood:						
Red oaks	240.5	138.7	49.4	47.9	1.6	2.9
White oaks	309.2	229.5	25.4	36.2	5.7	12.4
Sweetgum	201.9	111.6	44.5	41.4	2.8	1.6
Black and tupelo gums	17.9	7.9	2.4	4.6	1.0	2.0
Other hardwoods	932.6	675.3	108.4	125.6	13.6	9.7
Total	1,702.1	1,163.0	230.1	255.7	24.7	28.6
All species	1,810.9	1,227.5	261.5	267.7	25.0	29.2
SOUTH DELTA						
Softwood:						
Loblolly pine	33.4	7.5	14.7	9.9	1.3	...
Shortleaf pine	2.9	...	2.8	.1	...	...
Longleaf pine	2/	...	2/	...	...	...
Slash pine	...	...	...	...	...	...
Other pines	1.0	1.0	...	...	...	...
Other softwoods	401.9	196.9	159.0	41.1	3.7	1.2
Total	439.2	205.4	176.5	51.1	5.0	1.2
Hardwood:						
Red oaks	241.2	163.4	42.6	27.9	5.9	1.4
White oaks	96.1	75.0	10.4	9.6	1.1	...
Sweetgum	253.5	142.6	63.1	43.2	4.4	.2
Black and tupelo gums	643.6	305.0	255.3	81.9	1.2	.2
Other hardwoods	1,231.7	715.1	280.7	214.2	18.6	3.1
Total	2,466.1	1,401.1	652.1	376.8	31.2	4.9
All species	2,905.3	1,606.5	828.6	427.9	36.2	6.1

Species	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas[1]
	Million cubic feet					
NORTHWEST						
Softwood:						
Loblolly pine	1,027.1	504.1	323.7	169.7	28.7	0.9
Shortleaf pine	472.0	187.5	190.5	81.5	12.5	...
Longleaf pine	36.7	19.8	7.9	5.7	.1	3.2
Slash pine	4.5	...	...	4.5	...	...
Other pines	...	...	...	...	...	...
Other softwoods	55.8	20.5	18.4	13.2	3.4	.3
Total	1,596.1	731.9	540.5	274.6	44.7	4.4
Hardwood:						
Red oaks	363.0	143.9	99.9	106.6	11.8	.8
White oaks	370.7	153.6	104.1	100.1	10.3	2.6
Sweetgum	363.9	149.5	91.7	104.4	18.2	.1
Black and tupelo gums	88.5	42.7	27.0	17.0	1.7	.1
Other hardwoods	337.9	152.4	71.6	100.3	9.2	4.4
Total	1,524.0	642.1	394.3	428.4	51.2	8.0
All species	3,120.1	1,374.0	934.8	703.0	95.9	12.4
SOUTHWEST						
Softwood:						
Loblolly pine	922.8	392.5	366.1	137.7	17.4	9.1
Shortleaf pine	229.7	61.3	124.4	39.0	3.9	1.1
Longleaf pine	189.7	29.8	64.9	49.0	12.2	33.8
Slash pine	14.7	.1	3.9	10.1	...	.6
Other pines	...	...	...	...	...	...
Other softwoods	43.3	26.2	6.2	8.5	.6	1.8
Total	1,400.2	509.9	565.5	244.3	34.1	46.4
Hardwood:						
Red oaks	334.4	178.8	63.5	79.1	6.1	6.9
White oaks	242.1	124.1	52.5	58.4	5.8	1.3
Sweetgum	347.1	171.3	68.4	94.6	9.8	3.0
Black and tupelo gums	176.2	94.2	47.3	30.5	2.7	1.5
Other hardwoods	412.0	228.7	76.7	92.7	7.5	6.4
Total	1,511.8	797.1	308.4	355.3	31.9	19.1
All species	2,912.0	1,307.0	873.9	599.6	66.0	65.5
SOUTHEAST						
Softwood:						
Loblolly pine	514.7	189.2	269.0	49.3	7.2	...
Shortleaf pine	34.4	2.5	19.4	10.6	1.9	...
Longleaf pine	81.5	1.7	47.9	21.7	8.1	2.1
Slash pine	42.6	5.3	25.6	7.2	4.5	...
Other pines	59.6	25.8	26.8	5.9	1.1	...
Other softwoods	31.7	10.5	12.7	6.8	1.2	.5
Total	764.5	235.0	401.4	101.5	24.0	2.6
Hardwood:						
Red oaks	117.3	32.5	37.8	43.5	2.7	.8
White oaks	40.0	11.0	14.5	13.6	.5	.4
Sweetgum	121.3	41.2	35.4	41.7	2.5	.5
Black and tupelo gums	212.2	76.8	77.6	54.9	2.9	...
Other hardwoods	110.8	29.9	41.0	37.7	1.5	.7
Total	601.6	191.4	206.3	191.4	10.1	2.4
All species	1,366.1	426.4	607.7	292.9	34.1	5.0

1/ Includes areas not classified elsewhere.
2/ Negligible.

Table 20. --Average volume per acre of growing stock by forest type and Survey region, 1953-54

Forest type	State of Louisiana	North Delta	South Delta	North-west	South-west	South-east
			Cubic feet			
Softwood types:						
Longleaf-slash pine	184	...	...	576	140	274
Loblolly-shortleaf pine	897	1,145	609	891	852	1,040
Oak-pine	656	615	481	634	717	638
Total	661	860	575	801	531	693
Hardwood types:						
Oak-hickory	620	638	1,034	558	706	444
Elm-ash-cottonwood	865	1,104	868	461	731	729
Oak-gum-cypress	905	825	1,089	732	821	765
Total	846	832	1,047	642	770	665
All types	755	834	1,030	748	597	682

Table 21. --Average volume per acre of growing stock by stand size and forest type, 1953-1954

Forest type	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas 1/
			Cubic feet			
Softwood types:						
Longleaf-slash pine	184	836	915	320	87	43
Loblolly-shortleaf pine	897	1,696	1,248	419	114	46
Oak-pine	556	1,346	942	463	130	92
Total	661	1,570	1,148	420	112	45
Hardwood types:						
Oak-hickory	620	1,196	833	438	125	88
Elm-ash-cottonwood	865	1,473	1,217	606	83	93
Oak-gum-cypress	905	1,329	1,120	515	165	184
Total	846	1,323	1,079	502	144	168
All types:	755	1,398	1,117	465	125	71

1/ Includes areas not classified elsewhere.

Table 22.--Sawtimber volume by species and tree diameter, by Survey region, 1953-1954

Species	All diameter classes	10 - 12 inches 1/	14 - 18 inches	20 - 24 inches	26 inches and up	All diameter classes	10 - 12 inches 1/	14 - 18 inches	20 - 24 inches	26 inches and up
	Million board feet					Million board feet				
	STATE OF LOUISIANA					NORTHWEST				
Softwood:										
Loblolly pine	12,443.2	3,705.4	6,456.3	2,107.2	174.3	4,928.5	1,290.0	2,549.2	1,002.0	87.3
Shortleaf pine	3,439.9	1,505.9	1,698.0	236.0	...	2,140.9	851.0	1,119.5	170.4	...
Longleaf pine	1,386.7	650.4	652.7	72.2	11.4	206.4	45.9	135.0	25.5	...
Slash pine	198.2	104.6	89.5	4.1	...	...	...	...	...	...
Other pines	302.0	80.4	144.1	64.0	13.5	...	...	...	...	...
Other softwoods	2,529.1	648.3	1,251.7	326.1	303.0	244.3	68.9	117.9	32.3	25.2
Total	20,299.1	6,695.0	10,292.3	2,809.6	502.2	7,520.1	2,255.8	3,921.6	1,230.2	112.5
Hardwood:										
Red oaks	4,263.8	515.1	1,915.5	1,130.6	702.6	1,115.1	157.4	571.6	288.2	97.9
White oaks	3,543.3	430.5	1,415.9	1,088.1	608.8	1,185.4	206.7	541.1	321.9	115.7
Sweetgum	4,068.4	703.9	2,250.6	832.5	281.4	1,152.4	222.0	691.3	185.3	53.8
Black and tupelo gums	3,395.4	589.7	1,841.0	698.8	265.9	313.2	32.4	150.0	89.2	41.6
Other hardwoods	9,829.6	1,421.6	4,993.7	2,354.3	1,060.0	979.8	177.3	509.7	229.3	63.5
Total	25,100.5	3,660.8	12,416.7	6,104.3	2,918.7	4,745.9	795.8	2,463.7	1,113.9	372.5
All species	45,399.6	10,355.8	22,709.0	8,913.9	3,420.9	12,266.0	3,051.6	6,385.3	2,344.1	485.0
	NORTH DELTA					SOUTHWEST				
Softwood:										
Loblolly pine	326.4	77.7	160.0	76.9	11.8	4,522.0	1,381.8	2,372.3	706.4	61.5
Shortleaf pine	140.5	35.7	82.5	22.3	...	1,047.9	536.9	470.6	40.4	...
Longleaf pine	...	...	...	...	...	865.1	404.3	411.5	37.9	11.4
Slash pine	...	...	...	...	...	27.7	21.6	6.1	...	...
Other pines	...	...	...	...	...	...	...	...	...	...
Other softwoods	97.6	8.6	47.6	21.9	19.5	216.4	38.2	100.2	29.6	48.4
Total	564.5	122.0	290.1	121.1	31.3	6,679.1	2,382.8	3,360.7	814.3	121.3
Hardwood:										
Red oaks	840.7	103.0	378.2	240.6	118.9	1,055.8	124.1	460.3	274.1	197.3
White oaks	1,158.6	71.3	397.4	441.5	248.4	743.2	112.0	315.9	212.9	102.4
Sweetgum	687.1	103.7	367.4	147.6	68.4	1,052.6	183.8	570.9	205.6	92.3
Black and tupelo gums	68.4	6.6	25.8	19.8	16.2	548.7	77.4	311.2	115.0	45.1
Other hardwoods	3,405.0	367.6	1,622.2	900.6	514.6	1,306.1	190.1	684.1	306.0	125.9
Total	6,159.8	652.2	2,791.0	1,750.1	966.5	4,706.4	687.4	2,342.4	1,113.6	563.0
All species	6,724.3	774.2	3,081.1	1,871.2	997.8	11,385.5	3,070.2	5,703.1	1,927.9	684.3
	SOUTH DELTA					SOUTHEAST				
Softwood:										
Loblolly pine	143.8	66.8	45.2	18.1	13.7	2,522.5	889.1	1,329.6	303.8	...
Shortleaf pine	4.8	4.8	...	...	...	105.8	77.5	25.4	2.9	...
Longleaf pine	...	...	...	...	...	315.2	200.2	106.2	8.8	...
Slash pine	...	...	...	...	...	170.5	83.0	83.4	4.1	...
Other pines	5.6	...	1.8	3.8	...	296.4	80.4	142.3	60.2	13.5
Other softwoods	1,819.3	495.8	904.2	212.5	206.8	151.5	36.8	81.8	29.8	3.1
Total	1,973.5	567.4	951.2	234.4	220.5	3,561.9	1,367.0	1,768.7	409.6	16.6
Hardwood:										
Red oaks	951.1	71.5	330.5	272.0	277.1	301.1	59.1	174.9	55.7	11.4
White oaks	358.6	26.8	108.0	87.6	136.2	97.5	13.7	53.5	24.2	6.1
Sweetgum	859.6	134.2	449.1	209.4	66.9	316.7	60.2	171.9	84.6	...
Black and tupelo gums	1,781.4	369.0	935.9	354.1	122.4	683.7	104.3	418.1	120.7	40.6
Other hardwoods	3,841.2	631.0	2,000.7	869.0	340.5	297.5	55.6	177.0	49.4	15.5
Total	7,791.9	1,232.5	3,824.2	1,792.1	943.1	1,696.5	292.9	995.4	334.6	73.6
All species	9,765.4	1,799.9	4,775.4	2,026.5	1,163.6	5,258.4	1,659.9	2,764.1	744.2	90.2

1/ Hardwood sawtimber volume was not tallied in trees under 11.0 inches d.b.h.

Table 23. --Sawtimber volume by species and stand size, by Survey region, 1953-1954

Species	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas 1/	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas 1/
	Million board feet						Million board feet					
	STATE OF LOUISIANA						NORTHWEST					
Softwood:												
Loblolly pine	12,443.2	6,389.0	4,700.1	1,108.4	200.1	45.6	4,928.5	2,867.5	1,520.1	440.8	96.7	3.4
Shortleaf pine	3,439.9	1,464.6	1,552.3	370.8	47.8	4.4	2,140.9	1,036.1	872.5	197.6	34.7	...
Longleaf pine	1,386.7	302.9	536.4	259.3	92.8	195.3	206.4	118.0	39.5	29.2	.2	19.5
Slash pine	198.2	32.1	120.4	18.0	24.2	3.5	...	...	...	...	...	...
Other pines	302.0	154.1	121.0	21.7	5.2	...	...	...	...	...	...	...
Other softwoods	2,529.1	1,396.8	826.0	248.6	39.6	18.1	244.3	110.4	69.7	46.8	16.4	1.0
Total	20,299.1	9,739.5	7,856.2	2,026.8	409.7	266.9	7,520.1	4,132.0	2,501.8	714.4	148.0	23.9
Hardwood:												
Red oaks	4,263.8	2,581.0	903.7	667.6	72.4	39.1	1,115.1	547.8	308.9	224.8	31.7	1.9
White oaks	3,543.3	2,310.8	604.1	490.6	74.0	63.8	1,185.4	591.5	316.1	235.8	31.8	10.2
Sweetgum	4,068.4	2,404.8	891.6	644.3	110.3	17.4	1,152.4	589.2	272.1	238.3	52.8	...
Black and tupelo gums	3,395.4	1,930.3	1,106.0	322.7	27.2	9.2	313.2	174.5	97.5	35.3	5.9	...
Other hardwoods	9,829.6	6,753.1	1,674.4	1,199.9	127.6	74.6	979.8	537.3	212.6	203.5	13.5	12.9
Total	25,100.5	15,980.0	5,179.8	3,325.1	411.5	204.1	4,745.9	2,440.3	1,207.2	937.7	135.7	25.0
All species	45,399.6	25,719.5	13,036.0	5,351.9	821.2	471.0	12,266.0	6,572.3	3,709.0	1,652.1	283.7	48.9
	NORTH DELTA						SOUTHWEST					
Softwood:												
Loblolly pine	326.4	186.6	104.4	35.0	.4	...	4,522.0	2,207.1	1,737.6	456.8	78.3	42.2
Shortleaf pine	140.5	93.0	43.4	4.1	...	...	1,047.9	326.0	563.2	145.0	9.3	4.4
Longleaf pine	...	...	...	...	...	...	865.1	175.7	300.3	164.1	58.9	166.1
Slash pine	...	...	...	...	...	...	27.7	.3	14.5	9.4	...	3.5
Other softwoods	97.6	80.5	.4	13.4	...	3.3	216.4	144.1	28.4	31.8	4.1	8.0
Total	564.5	360.1	148.2	52.5	.4	3.3	6,679.1	2,853.2	2,644.0	807.1	150.6	224.2
Hardwood:												
Red oaks	840.7	548.8	164.1	115.9	.4	11.5	1,055.8	670.9	184.1	172.2	10.8	17.8
White oaks	1,158.6	911.9	76.2	100.2	21.7	48.6	743.2	463.7	151.4	107.7	16.9	3.5
Sweetgum	687.1	453.1	143.7	76.4	7.4	6.5	1,052.6	659.3	188.9	162.3	32.3	9.8
Black and tupelo gums	68.4	36.0	7.3	13.9	4.4	6.8	548.7	348.0	130.6	61.4	7.0	1.7
Other hardwoods	3,405.0	2,654.6	352.1	327.1	39.9	31.3	1,306.1	825.7	228.2	208.5	23.6	20.1
Total	6,159.8	4,604.4	743.4	633.5	73.8	104.7	4,706.4	2,967.6	883.2	712.1	90.6	52.9
All species	6,724.3	4,964.5	891.6	686.0	74.2	108.0	11,385.5	5,820.8	3,527.2	1,519.2	241.2	277.1
	SOUTH DELTA						SOUTHEAST					
Softwood:												
Loblolly pine	143.8	39.1	71.2	29.4	4.1	...	2,522.5	1,088.7	1,266.8	146.4	20.6	...
Shortleaf pine	4.8	...	4.0	.8	...	...	105.8	9.5	69.2	23.3	3.8	...
Longleaf pine	...	...	...	...	...	...	315.2	9.2	196.6	66.0	33.7	9.7
Slash pine	...	...	...	...	...	...	170.5	31.8	105.9	8.6	24.2	...
Other pines	5.6	5.6	...	...	...	...	296.4	148.5	121.0	21.7	5.2	...
Other softwoods	1,819.3	1,005.3	670.9	125.5	14.4	3.2	151.5	56.5	56.6	31.1	4.7	2.6
Total	1,973.5	1,050.0	746.1	155.7	18.5	3.2	3,561.9	1,344.2	1,816.1	297.1	92.2	12.3
Hardwood:												
Red oaks	951.1	707.8	138.6	73.9	25.1	5.7	301.1	105.7	108.0	80.8	4.4	2.2
White oaks	358.6	302.2	28.0	25.2	3.2	...	97.5	41.5	32.4	21.7	.4	1.5
Sweetgum	859.6	561.9	196.2	88.5	12.3	.7	315.7	141.3	90.7	78.8	5.5	.4
Black and tupelo gums	1,781.4	1,059.8	609.9	107.8	3.2	.7	683.7	312.0	260.7	104.3	6.7	...
Other hardwoods	3,841.2	2,636.5	759.1	389.1	48.3	8.2	297.5	99.0	122.4	71.7	2.3	2.1
Total	7,791.9	5,268.2	1,731.8	684.5	92.1	15.3	1,696.5	699.5	614.2	357.3	19.3	6.2
All species	9,765.4	6,318.2	2,477.9	840.2	110.6	18.5	5,258.4	2,043.7	2,430.3	654.4	111.5	18.5

1/ Includes areas not classified elsewhere.

Table 24.--Sawtimber volume by species and Survey region, 1953-54

Species	State of Louisiana	North Delta	South Delta	Northwest	Southwest	Southeast
	Million board feet					
Softwood:						
Loblolly pine	12,443.2	326.4	143.8	4,928.5	4,522.0	2,522.5
Shortleaf pine	3,439.9	140.5	4.8	2,140.9	1,047.9	105.8
Longleaf pine	1,386.7	...	...	206.4	865.1	315.2
Slash pine	198.2	...	...	...	27.7	170.5
Other pines	302.0	...	5.6	...	...	296.4
Cypress	2,524.7	97.6	1,819.3	243.8	212.5	151.5
Other softwoods	4.4	...	...	.5	3.9	...
Total	20,299.1	564.5	1,973.5	7,520.1	6,679.1	3,561.9
Hardwood:						
Black, scarlet and southern red oaks	747.6	31.3	15.6	406.4	249.7	44.6
Cherrybark, Shumard and northern red oaks	464.0	53.1	113.3	117.9	157.5	22.2
Water oaks	3,052.2	756.3	822.2	590.8	648.6	234.3
White oak (Q. alba)	829.8	65.0	.5	418.6	324.1	21.6
Other white oaks	2,713.5	1,093.6	358.1	766.8	419.1	75.9
Pecan	2,157.8	1,158.6	668.4	120.5	203.8	6.5
Other hickories	656.8	54.6	47.1	283.0	248.0	24.1
Sweetgum	4,068.4	687.1	859.6	1,152.4	1,052.6	316.7
Black and tupelo gums	3,395.4	68.4	1,781.4	313.2	548.7	683.7
Cottonwood	341.7	179.7	148.9	10.3	...	2.8
Willow	1,520.1	255.7	1,193.3	25.2	37.2	8.7
Soft maple	244.5	20.6	160.2	22.0	16.2	25.5
Yellow-poplar	55.0	2.3	7.2	.6	4.7	40.2
Sweetbay and magnolia	252.3	17.2	37.0	45.5	94.0	58.6
Elm	1,344.9	742.1	321.5	142.4	111.5	27.4
Ash	1,412.3	312.1	755.9	84.1	214.5	45.7
Hackberry	768.2	349.2	358.7	27.3	31.0	2.0
Beech	565.7	38.9	20.6	178.1	282.7	45.4
Sycamore	162.9	89.0	37.3	3.4	31.3	1.9
Other hardwoods	347.4	185.0	85.1	37.4	31.2	8.7
Total	25,100.5	6,159.8	7,791.9	4,745.9	4,706.4	1,696.5
All species	45,399.6	6,724.3	9,765.4	12,266.0	11,385.5	5,258.4

Table 25. -- Average sawtimber volume per acre by forest type and Survey region, 1953-54

Forest type	State of Louisiana	North Delta	South Delta	North-west	South-west	South-east
			Board feet			
Softwood types:						
Longleaf-slash pine	735	...	...	2,442	580	1,004
Loblolly-shortleaf pine	3,918	5,272	2,381	3,896	3,679	4,652
Oak-pine	2,382	2,392	1,465	2,248	2,615	2,428
Total	2,755	3,721	2,137	3,335	2,208	2,923
Hardwood types:						
Oak-hickory	1,984	2,051	4,249	1,688	2,308	1,297
Elm-ash-cottonwood	2,726	4,575	2,546	809	2,493	2,602
Oak-gum-cypress	3,174	3,003	3,714	2,667	2,954	2,480
Total	2,903	3,044	3,511	2,151	2,670	2,124
All types	2,831	3,097	3,463	2,942	2,336	2,626

Table 26. -- Average sawtimber volume per acre by stand size and forest type, 1953-54

Forest type	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas 1/
			Board feet			
Softwood types:						
Longleaf-slash pine	735	4,658	3,838	818	384	202
Loblolly-shortleaf pine	3,918	8,638	5,327	1,063	335	157
Oak-pine	2,382	5,943	3,574	1,195	392	371
Total	2,755	7,794	4,788	1,074	360	204
Hardwood types:						
Oak-hickory	1,984	4,857	2,755	902	376	218
Elm-ash-cottonwood	2,726	6,121	3,437	1,039	151	268
Oak-gum-cypress	3,174	5,283	3,499	1,190	558	648
Total	2,903	5,286	3,362	1,095	459	577
All types	2,831	6,053	4,153	1,086	398	284

1/ Includes areas not classified elsewhere.

Table 27. -- Softwood sawtimber volume by log grade and stand quality, by species group and Survey region, 1953-1954

Species group and Survey region	All grades	Grade 1	Grade 2	Grade 3			Grade 4		
				Total	In fair and better stands	In poor stands	Total	In fair and better stands	In poor stands
				Million board feet					
Species group:									
Loblolly pine	12,443.2	262.1	1,719.3	4,836.5	2,411.4	2,425.1	5,625.3	2,282.1	3,343.2
Shortleaf pine	3,439.9	20.5	660.0	1,301.0	783.8	517.2	1,458.4	752.0	706.4
Longleaf pine	1,386.7	9.1	172.7	401.2	88.2	313.0	803.7	153.9	649.8
Slash pine	198.2	0.9	47.9	74.6	36.7	37.9	74.8	16.9	57.9
Other pines	302.0	8.8	40.7	141.9	48.3	93.6	110.6	24.4	86.2
Other softwoods	2,529.1	130.4	445.0	1,295.5	749.2	546.3	658.2	325.8	332.4
Total	20,299.1	431.8	3,085.6	8,050.7	4,117.6	3,933.1	8,731.0	3,555.1	5,175.9
Survey region:									
North Delta	564.5	25.3	144.7	219.3	160.9	58.4	175.2	131.2	44.0
South Delta	1,973.5	89.5	336.5	1,083.0	675.5	407.5	464.5	270.9	193.6
Northwest	7,520.1	157.6	1,357.3	2,879.5	1,637.8	1,241.7	3,125.7	1,502.9	1,622.8
Southwest	6,679.1	128.8	870.1	2,127.8	1,022.8	1,105.0	3,552.4	1,358.3	2,194.1
Southeast	3,561.9	30.6	377.0	1,741.1	620.6	1,120.5	1,413.2	291.8	1,121.4
Total	20,299.1	431.8	3,085.6	8,050.7	4,117.6	3,933.1	8,731.0	3,555.1	5,175.9

Table 28.-- Hardwood sawtimber volume by log class and stand quality, by species group and Survey region, 1953-1954

Species group and Survey region	All classes	Standard lumber logs					Tie and timber logs		
		Grade 1	Grade 2	Grade 3			Total	In fair and better stands	In poor stands
				Total	In fair and better stands	In poor stands			
	Million board feet								
Species group:									
Red oaks	4,263.8	491.5	688.8	1,918.4	893.7	1,024.7	1,165.1	515.8	649.3
White oaks	3,543.3	434.0	577.1	1,571.7	774.2	797.5	960.5	393.2	567.3
Sweetgum	4,068.4	389.7	679.2	1,974.4	965.3	1,009.1	1,025.1	419.2	605.9
Black and tupelo gums	3,395.4	340.0	880.5	1,807.6	1,019.1	788.5	367.3	210.2	157.1
Other hardwoods	9,829.6	1,286.4	1,974.6	4,885.5	2,671.9	2,213.6	1,683.1	679.9	1,003.2
Total	25,100.5	2,941.6	4,800.2	12,157.6	6,324.2	5,833.4	5,201.1	2,218.3	2,982.8
Survey region:									
North Delta	6,159.8	1,007.8	1,264.1	2,785.5	1,603.7	1,181.8	1,102.4	427.3	675.1
South Delta	7,791.9	1,030.1	1,752.2	4,027.7	2,455.4	1,572.3	981.9	556.0	425.9
Northwest	4,745.9	331.8	638.0	2,255.2	1,035.9	1,219.3	1,520.9	648.3	872.6
Southwest	4,706.4	498.4	838.3	2,146.4	1,083.2	1,063.2	1,223.3	535.1	688.2
Southeast	1,696.5	73.5	307.6	942.8	146.0	796.8	372.6	51.6	321.0
Total	25,100.5	2,941.6	4,800.2	12,157.6	6,324.2	5,833.4	5,201.1	2,218.3	2,982.8

Table 29.-- Net annual growth of sawtimber and growing stock by species and class of timber, by Survey region, 1953-1954

Class of timber	Growing stock			Sawtimber		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	Million cubic feet			Million board feet		
STATE OF LOUISIANA						
Sawtimber trees	569.2	267.6	301.6	2,809.4	1,495.6	1,313.8
Poletimber trees	146.8	42.2	104.6	...	...	...
Total	716.0	309.8	406.2	2,809.4	1,495.6	1,313.8
NORTH DELTA						
Sawtimber trees	68.2	6.4	61.8	308.0	35.8	272.2
Poletimber trees	19.9	.8	19.1	...	...	...
Total	88.1	7.2	80.9	308.0	35.8	272.2
SOUTH DELTA						
Sawtimber trees	134.5	19.2	115.3	592.8	101.2	491.6
Poletimber trees	26.2	1.4	24.8	...	...	...
Total	160.7	20.6	140.1	592.8	101.2	491.6
NORTHWEST						
Sawtimber trees	155.3	104.4	50.9	804.9	575.7	229.2
Poletimber trees	46.7	21.4	25.3	...	...	...
Total	202.0	125.8	76.2	804.9	575.7	229.2
SOUTHWEST						
Sawtimber trees	141.2	90.0	51.2	728.1	504.5	223.6
Poletimber trees	32.9	11.8	21.1	...	...	...
Total	174.1	101.8	72.3	728.1	504.5	223.6
SOUTHEAST						
Sawtimber trees	70.0	47.6	22.4	375.6	278.4	97.2
Poletimber trees	21.1	6.8	14.3	...	...	...
Total	91.1	54.4	36.7	375.6	278.4	97.2

Table 30.--Net annual growth per acre of sawtimber and growing stock, by forest-type and stand-size group, by Survey region, 1953-1954

Stand-size group	Growing stock			Sawtimber		
	All types	Softwood types	Hardwood types	All types	Softwood types	Hardwood types
	Cubic feet			Board feet		
STATE OF LOUISIANA						
Sawtimber	61	72	53	281	367	220
Poletimber	43	48	39	123	152	98
Other stand sizes	13	13	15	35	38	28
Total	45	46	43	175	198	153
NORTH DELTA						
Sawtimber	46	65	45	180	278	172
Poletimber	38	54	37	97	195	87
Other stand sizes	16	1/	16	36	11	37
Total	41	58	39	142	238	134
SOUTH DELTA						
Sawtimber	68	73	68	285	320	284
Poletimber	48	66	48	126	270	121
Other stand sizes	19	27	18	25	38	24
Total	57	55	57	210	210	210
NORTHWEST						
Sawtimber	62	73	38	311	369	176
Poletimber	46	54	34	129	154	88
Other stand sizes	21	25	13	54	65	28
Total	48	57	32	193	233	112
SOUTHWEST						
Sawtimber	59	66	45	284	332	193
Poletimber	42	46	36	134	159	93
Other stand sizes	9	8	12	30	31	26
Total	36	36	36	149	158	126
SOUTHEAST						
Sawtimber	74	88	51	372	470	199
Poletimber	38	37	40	105	118	92
Other stand sizes	13	13	11	29	31	21
Total	45	49	40	188	227	121

1/ Negligible.

Table 31.--Annual cut of sawtimber and growing stock by species, 1953

Species	Growing stock	Sawtimber
	Million cu. ft.	Million bd. ft.
Softwood:		
Pines	165.9	557.8
Cypress	10.0	49.0
Other	(1/)	(1/)
Total	175.9	605.8
Hardwood:		
Oaks	70.1	320.0
Other firm-textured hardwoods	33.5	138.6
Black and tupelo gums	28.3	121.0
Sweetgum	26.8	113.4
Other soft-textured hardwoods	31.0	128.3
Total	189.7	821.3
All species	365.6	1,428.1

1/ Negligible.

Table 32.--Annual cut of sawtimber and growing stock, by species group and class of timber, by Survey region, 1953

Class of timber	Growing stock			Sawtimber		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	Million cubic feet			Million board feet		
STATE OF LOUISIANA						
Sawtimber trees	287.6	119.3	168.3	1,428.1	606.8	821.3
Poletimber trees	78.0	56.6	21.4	...	...	...
Total	365.6	175.9	189.7	1,428.1	606.8	821.3
NORTH DELTA						
Sawtimber trees	45.0	4.1	40.9	220.6	20.9	199.7
Poletimber trees	5.9	1.2	4.7	...	...	...
Total	50.9	5.3	45.6	220.6	20.9	199.7
SOUTH DELTA						
Sawtimber trees	43.7	4.8	38.9	215.4	25.4	190.0
Poletimber trees	5.8	0.6	5.2	...	...	...
Total	49.5	5.4	44.1	215.4	25.4	190.0
NORTHWEST						
Sawtimber trees	76.0	41.4	34.6	373.8	206.0	167.8
Poletimber trees	32.7	27.3	5.4	...	...	...
Total	108.7	68.7	40.0	373.8	206.0	167.8
SOUTHWEST						
Sawtimber trees	70.6	40.1	30.5	356.6	207.1	149.5
Poletimber trees	17.9	14.7	3.2	...	...	...
Total	88.5	54.8	33.7	356.6	207.1	149.5
SOUTHEAST						
Sawtimber trees	52.3	28.9	23.4	261.7	147.4	114.3
Poletimber trees	15.7	12.8	2.9	...	...	...
Total	68.0	41.7	26.3	261.7	147.4	114.3

Table 33. --Change in commercial forest land between Surveys by forest-type group and Survey region, 1934-35 and 1953-54

Survey region	Change between Surveys			
	All types	Softwood1/	Bottomland hardwood2/	Oak-hickory
	Percent			
North Delta	- 11	+ 11	- 14	+ 78
South Delta	- 6	+ 29	- 8	+ 55
Northwest	+ 14	+ 18	- 15	+ 50
Southwest	- 2	- 4	- 24	+ 85
Southeast	- 4	- 12	- 8	+ 116
Total	- 1	+ 2	- 13	+ 71

1/ Includes longleaf-slash pine, loblolly-shortleaf pine, and oak-pine types.
2/ Includes oak-gum-cypress and elm-ash-cottonwood types.

Table 34. --Change in growing stock between Surveys by species group and Survey region, 1934-35 and 1953-54

Survey region	Change between Surveys		
	All species	Softwood	Hardwood
	Percent		
North Delta	- 22	- 7	- 22
South Delta	+ 26	+ 35	+ 24
Northwest	+ 6	+ 6	+ 6
Southwest	+ 12	+ 13	+ 12
Southeast	+ 1	+ 8	- 8
Total	+ 5	+ 11	+ 2

Table 35. --Change in sawtimber volume between Surveys by species group and Survey region, 1934-35 and 1953-54

Survey region	Change between Surveys		
	All species	Softwood	Hardwood
	Percent		
North Delta	- 27	- 7	- 28
South Delta	+ 23	+ 33	+ 21
Northwest	+ 4	+ 9	- 3
Southwest	+ 8	+ 14	+ 2
Southeast	- 4	+ 8	- 24
Total	+ 1	+ 12	- 6

Table 36.--Total number of live trees[1/] by species group and Survey region (1953-54) and change between Surveys (1934-35 and 1953-54)

Diameter class (inches)	Softwood		Hardwood	
	Thousand trees	Percent change	Thousand trees	Percent change
STATE OF LOUISIANA				
2-4	1,122,522	+ 59	5,182,297	+ 94
6-8	265,767	+ 8	681,122	+ 34
10-12	107,654	+ 5	269,446	+ 28
14-18	53,742	+ 41	149,554	+ 14
20 and up	7,495	- 12	46,606	- 16
Total	1,557,180	+ 41	6,329,025	+ 77
NORTH DELTA				
2-4	20,384	+ 18	846,957	+163
6-8	4,268	- 17	98,275	+ 27
10-12	1,923	- 10	41,761	- 2
14-18	1,452	+ 69	30,998	(2/)
20 and up	398	- 35	12,752	- 28
Total	28,425	+ 9	1,030,743	+110
SOUTH DELTA				
2-4	61,558	+ 7	1,153,974	+ 50
6-8	29,000	+ 26	201,663	+ 21
10-12	13,441	+ 35	85,420	+ 44
14-18	7,431	+ 66	42,761	+ 30
20 and up	1,291	+ 4	12,768	+ 8
Total	112,721	+ 17	1,496,586	+ 44

Softwood		Hardwood	
Thousand trees	Percent change	Thousand trees	Percent change
NORTHWEST			
553,570	+138	1,543,277	+148
116,675	+ 14	152,822	+ 40
36,187	- 18	58,588	+ 25
18,679	+ 28	30,167	+ 15
2,748	+ 27	8,421	- 16
727,859	+ 84	1,793,275	+120
SOUTHWEST			
338,689	+ 65	1,201,386	+ 80
75,520	+ 3	154,129	+ 46
36,542	+ 16	57,027	+ 34
17,465	+ 52	30,553	+ 18
1,993	- 29	8,835	- 10
470,209	+ 45	1,451,930	+ 70
SOUTHEAST			
148,321	- 23	436,703	+ 53
40,304	- 5	74,233	+ 45
19,561	+ 34	26,650	+ 31
8,715	+ 31	15,075	+ 2
1,065	- 37	3,830	- 32
217,966	- 16	556,491	+ 48

1/ Includes both cull and growing stock trees.
2/ Negligible.

DEFINITIONS OF TERMS

Forest Land

Forest land. Includes: (a) land which is at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or of exerting an influence on the climate or on the water regime; (b) land from which the trees have been removed to less than 10 percent stocking and which has not been developed for other use; (c) afforested areas.

Commercial forest land. Forest land which is (a) producing, or is physically capable of producing, usable crops of wood (usually sawtimber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

Noncommercial forest land. Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land and (b) incapable of yielding usable wood products (usually sawtimber) because of adverse site conditions, or so physically inaccessible as to be unavailable economically in the foreseeable future.

Tree Species

Commercial species. Includes species that normally have value for commercial timber products; excludes so-called weed or noncommercial species such as blackjack oak, scrub post oak, blue beech, sourwood, etc.

Softwoods. Coniferous species, of which the most numerous are loblolly pine (Pinus taeda); shortleaf pine (P. echinata); longleaf pine (P. palustris); slash pine (P. caribaea); and cypress (Taxodium distichum).

Hardwoods. Broadleaved species, of which the most numerous are the oaks (Quercus spp.) and sweetgum (Liquidambar styraciflua).

Forest Type

Forest type is determined upon the basis of the predominant species as indicated by cubic volume for sawtimber and poletimber stands, and number of trees for seedling-sapling stands.

Longleaf-slash pine. Forests in which 50 percent or more of the stand is longleaf or slash pine, singly or in combination. (Common associates include other southern pines, oak, and gum.)

Loblolly-shortleaf pine. Forests in which 50 percent or more of the stand is loblolly pine, shortleaf pine, or other southern yellow pines excepting longleaf or slash pine, singly or in combination. (Common associates include oak, hickory, and gum.)

Oak-pine. Forests in which 50 percent or more of the stand is hardwoods, usually upland oaks, but in which southern pines make up 25 - 49 percent of the stand. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory. Forests in which 50 percent or more of the stand is upland oaks or hickory, singly or in combination, except where pines comprise 25 - 49 percent in which case the stand would be classified "oak-pine." (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress. Bottomland forests in which 50 percent or more of the stand is tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, except where pines comprise 25 - 49 percent in which case the stand would be classified "oak-pine." (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood. Forests in which 50 percent or more of the stand is elm, ash, or cottonwood, singly or in combination. (Common associates include willow, sycamore, beech, and maple.)

Class of Timber

Sawtimber trees. Live trees of commercial species at least 9.0 inches d.b.h. in softwoods and 11.0 inches d.b.h. in hardwoods, that contain at least a 12-foot merchantable butt log--or, if the butt log is a cull, at least 50 percent of the gross sawlog volume is in merchantable logs. To be merchantable, a log must meet the following requirements:

(a) In softwoods, logs having a minimum 6-inch small-end diameter inside bark and at least one-third sound, with sweep or crook not exceeding two-thirds the small-end diameter.

(b) In hardwoods, logs having a minimum 8-inch small-end diameter inside bark and which meet the specifications of a standard lumber log or a tie and timber log.

Poletimber trees. Trees of commercial species which meet regional specifications of soundness and form, and which are of the following diameters at breast height: softwoods 5.0 to 9.0 inches; hardwoods 5.0 to 11.0 inches. (Such trees will usually become sawtimber trees if left to grow.)

Seedling and sapling trees. Live trees of commercial species less than 5.0 inches in diameter at breast height and of good form and vigor.

Cull trees. Live trees of sawtimber or poletimber size that are unmerchantable for sawlogs now or prospectively because of defect, rot, or species.

Rotten cull trees. Live trees of sawtimber or poletimber size which fail to meet regional specifications of proportion of sound volume to total volume.

Sound cull trees. Live trees of sawtimber or poletimber size which meet regional specifications of freedom from rot but will not make at least one merchantable sawlog now or prospectively according to regional specifications because of roughness, poor form, or species.

Hardwood limbs. Limbs of hardwood sawtimber trees and sawtimber-size cull hardwood trees to a minimum diameter of 4.0 inches inside bark.

Stand-size Class

Large sawtimber. Stands with sawtimber trees having a minimum net volume per acre of 1,500 board feet, International 1/4-inch rule, and at least half of this volume in sawtimber trees 15.0 inches d.b.h. and larger.

Small sawtimber. Stands with sawtimber trees having a minimum net volume per acre of 1,500 board feet, International 1/4-inch rule, but which do not meet the specifications for large sawtimber.

Poletimber. Stands failing to meet the sawtimber stand specification, but at least 10 percent stocked with poletimber and larger (5.0 inches d.b.h. and larger) trees and with at least half the minimum stocking in poletimber trees.

Seedling and sapling. Stands not qualifying as either sawtimber or poletimber stands, but having at least 10 percent stocking of trees of commercial species and with at least half the minimum stocking in seedling and sapling trees.

Nonstocked and other areas. Commercial forest land not qualifying as sawtimber, poletimber, or seedling and sapling stands.

Tree Stocking

Stocking is the extent to which growing space is effectively utilized by present or potential growing-stock trees of commercial species. Stands are considered to be well stocked when the percentage of full stocking is 70 or above, medium stocked when the percentage is 40 to 69, poorly stocked when the percentage is 10 to 39, and nonstocked when the percentage is under 10.

Volume

Sawtimber volume. Net volume in board feet, International 1/4-inch rule, of live sawtimber trees to a specified merchantable top.

Growing stock. Net volume in cubic feet of live sawtimber and live poletimber trees from stump to a minimum 4.0-inch top diameter (of central stem) inside bark.

All-timber volume. Net volume in cubic feet of live and salvable dead sawtimber trees and poletimber trees of commercial species, and cull trees of all species from stump to a minimum 4.0-inch top inside bark. Includes bole only of softwoods but both bole and limbs of hardwoods to a minimum 4.0-inch diameter inside bark.

Basal Area

Basal area. Cross-sectional area, including bark, of trees at breast height, measured in square feet.

Diameter

D.b.h. (diameter breast high). Tree diameter in inches, outside bark, measured at 4-1/2 feet above ground.

Diameter class. The 2-inch diameter classes extend from 1.0 inch below to 0.9 inch above the stated midpoint. Thus, the 12-inch class includes trees 11.0 inches to and including 12.9 inches d.b.h.

Growth

Net annual growth of sawtimber. The change during a specified year in net board-foot volume of live sawtimber on commercial forest land resulting from natural causes.

Net annual growth of growing stock. The change during a specified year in net cubic-foot volume of growing stock on commercial forest land resulting from natural causes.

Cut

Annual cut of sawtimber. The net board-foot volume of live sawtimber trees cut or killed by logging on commercial forest land during a specified year.

Annual cut of growing stock. The net cubic-foot volume of live sawtimber and poletimber trees cut or killed by logging on commercial forest land during a specified year.

Output

Timber products output. The volume of timber products cut from both growing stock and other sources.

Softwood Log Grades[4/]

Softwood log grades are based on the value yield per unit outturn of yard lumber. The value of lumber yield may be expressed relative to the value of No. 2 Common lumber taken as 100 percent. Expressed thus, studies have shown that lumber from grade 1 logs has a value 244 percent as great as No. 2 Common lumber, while the corresponding percentages are 189 percent for grade 2 logs, 142 percent for grade 3 logs, and 107 percent for grade 4 logs.

Hardwood Log Class

Specifications for standard lumber logs (hardwood log grades 1, 2, and 3) are based on suitability for standard factory lumber.[5/] Studies have shown that for nearly all species tested, the yield of No. 1 Common and better lumber in grade 1 logs varies from 65 to 80 percent; in grade 2 logs from 40 to 64 percent; and in grade 3 logs from 13 to 36 percent.

Tie and timber logs are suitable for ties, timbers, and certain other construction lumber items. Specifications for tie and timber logs are based chiefly on knot size and log soundness; clear cuttings are not required.

Stand Quality

Fair and better. A stand in which at least four grade-2 or better logs are present per acre.

Poor. A stand in which fewer than four grade-2 or better logs are present per acre.

4/ For detailed specifications of log grades, see "Interim log grades for southern pine." Southern Forest Experiment Station, 18 pp. 1953.
5/ For detailed specifications of log grades, see "Hardwood log grades for standard lumber: proposals and results." U. S. Forest Products Laboratory D1737. 1949.

STANDARD TABLES

The 10 tables that follow will be found in all Forest Survey State reports in order that forest statistics for a group of States can be easily compared or compiled.

Table I. --Land area, by major classes of land, Louisiana 1953-54

Class of land	Area
	Thousand acres
Forest:	
Commercial	16,038.0
Noncommercial:	
Productive-reserved	84.3
Unproductive	6.6
Total	16,128.9
Nonforest[1/]	12,774.8
Total, all classes	28,903.7

1/ Includes some acreage of water according to Survey standards of area classification but defined by the Bureau of Census as land.

Table II. --Commercial forest land area, by ownership class, Louisiana, 1953-54

Ownership class	Area
	Thousand acres
Federally owned or managed:	
National forest	535.8
Indian	...
Bureau of Land Management	4.3
Other	127.3
Total	667.4
State	176.1
County and municipal	4.9
Private:	
Farm	3,189.1
Industrial and other	12,000.5
Total	15,189.6
All ownerships	16,038.0

Table III. --Area of commercial forest land, by major forest types, Louisiana, 1953-54

Forest type	Thousand acres
Longleaf-slash pine	1,966.8
Loblolly-shortleaf pine	4,011.5
Oak-pine	1,855.7
Oak-hickory	1,601.9
Oak-gum-cypress	5,899.1
Elm-ash-cottonwood	703.0
Total	16,038.0

Table IV.--Net volume of live sawtimber and growing stock on commercial forest land, by stand-size class, Louisiana, 1953-54

Stand-size class	Sawtimber	Growing stock
	Million board feet	Million cubic feet
Sawtimber stands	38,755.5	9,447.9
Poletimber stands	5,351.9	2,291.1
Seedling and sapling stands	821.2	257.2
Nonstocked and other areas not elsewhere classified	471.0	118.2
Total	45,399.6	12,114.4

Table V.--Net volume of live sawtimber and growing stock on commercial forest land, by ownership class, Louisiana, 1953-54

Ownership class	Sawtimber	Growing stock
	Million board feet	Million cubic feet
Federally owned or managed:		
National forest	1,574.9	373.6
Indian	...	...
Bureau of Land Management	10.0	2.7
Other	283.9	77.5
Total	1,868.8	453.8
State	487.0	134.0
County and municipal	7.4	2.1
Private:		
Farm	6,667.4	1,960.9
Industrial and other	36,369.0	9,563.6
Total	43,036.4	11,524.5
All ownerships	45,399.6	12,114.4

Table VI.--Net volume of live sawtimber and growing stock on commercial forest land, by species, Louisiana, 1953-54

Species	Sawtimber	Growing stock
	Million board feet	Million cubic feet
Softwoods:		
Longleaf and slash pines	1,584.9	369.7
Shortleaf and loblolly pines	15,883.1	3,327.0
Other southern yellow pines	302.0	60.6
Cypress	2,524.7	550.2
Other eastern softwoods	4.4	1.3
Total	20,299.1	4,308.8
Hardwoods:		
White oaks (Q. alba and michauxii)	992.7	303.8
Red oaks (Q. rubra, shumardii, and falcata var. pagodaefolia)	464.0	125.8
Other white oaks	2,550.6	754.3
Other red oaks	3,799.8	1,170.6
Sugar maple	9.4	3.8
Soft maples	244.5	121.8
Beech	565.7	150.4
Sweetgum	4,068.4	1,287.7
Tupelo and blackgum	3,395.4	1,138.4
Ash	1,412.3	485.9
Hickory	2,814.6	770.2
Cottonwood	341.7	87.8
Basswood	13.8	4.0
Yellow-poplar	55.0	15.7
Black walnut	.5	.2
Other eastern hardwoods	4,372.1	1,385.2
Total	25,100.5	7,805.6
All species	45,399.6	12,114.4

Table VII.--Net volume of live sawtimber on commercial forest land, by diameter class groups and species, Louisiana, 1953-54

Species	Diameter class groups						Total
	10 inches	12 inches	14 inches	16 inches	18 inches	20 inches and up	
	Million board feet						
Southern yellow pines	2,595.6	3,451.1	3,653.8	3,113.5	2,273.3	2,682.7	17,770.0
Other eastern softwoods	249.5	398.8	458.3	412.9	380.5	629.1	2,529.1
White oaks (Q. alba and michauxii)	...	171.1	181.8	186.1	140.9	312.8	992.7
Other white oaks	...	259.4	277.4	319.2	310.5	1,384.1	2,550.6
Red oaks (Q. rubra, falcata var. pagodaefolia and shumardii)	...	46.7	85.7	75.7	83.0	172.9	464.0
Other red oaks	...	468.4	573.6	570.9	526.6	1,660.3	3,799.8
Sugar maple	...	2.7	3.0	2.7	1.0	...	9.4
Beech	...	61.7	92.8	98.7	105.4	207.1	565.7
Sweetgum	...	703.9	879.4	729.3	641.9	1,113.9	4,068.4
Tupelo and blackgum	...	589.7	683.8	651.8	505.4	964.7	3,395.4
Yellow-poplar	...	11.3	14.8	9.2	7.8	11.9	55.0
Other eastern hardwoods	...	1,345.9	1,572.5	1,598.6	1,487.2	3,195.3	9,199.5

Table VIII.--Net volume of all timber on commercial forest land, by class of material and species group, Louisiana, 1953-54

Class of material	Total	Softwoods	Hardwoods
	Million cubic feet		
Growing stock:			
Sawtimber trees:			
Sawlog portion	7,269.6	3,353.5	3,916.1
Upper stem portion	2,014.2	250.9	1,763.3
Total	9,283.8	3,604.4	5,679.4
Poletimber trees	2,830.6	704.4	2,126.2
Total growing stock	12,114.4	4,308.8	7,805.6
Other material:			
Sound cull trees	1,261.7	34.8	1,226.9
Rotten cull trees	630.1	42.0	588.1
Hardwood limbs	904.6	...	904.6
Salvable dead trees	70.3	21.6	48.7
Total other material	2,866.7	98.4	2,768.3
Total, all timber	14,981.1	4,407.2	10,573.9

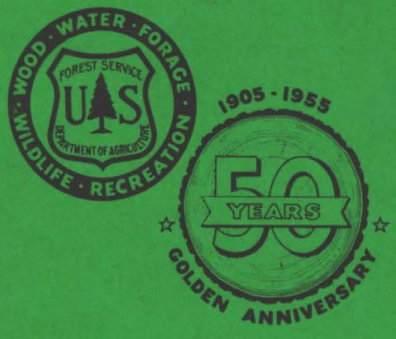
Table IX.--Net annual growth, annual mortality, and annual cut of live sawtimber and growing stock on commercial forest land, by species group, Louisiana, 1953

Item	Sawtimber			Growing stock		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	Million board feet			Million cubic feet		
Net annual growth	2,809.4	1,495.6	1,313.8	716.0	309.8	406.2
Annual mortality	272.9	122.3	150.6	81.2	28.0	53.2
Annual cut						
Timber products	1,354.7	596.1	758.6	303.2	164.3	138.9
Logging residues	73.4	10.7	62.7	62.4	11.6	50.8
Total annual cut	1,428.1	606.8	821.3	365.6	175.9	189.7

Table X. --Output of timber products and annual cut of live sawtimber and growing stock, Louisiana, 1953

Product	Output of timber products					Annual cut of sawtimber			Annual cut of growing stock		
	Volume in standard units		Roundwood volume								
	Standard units	Number	Total	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods
			Thousand cubic feet			Thousand board feet			Thousand cubic feet		
Sawlogs	MBM[1]	957,052	148,995	71,610	77,385	952,831	411,980	540,851	190,341	78,914	111,427
Veneer logs and bolts	MBM[1]	68,000	9,520	...	9,520	75,131	...	75,131	13,727	...	13,727
Cooperage logs and bolts	MBM[1]	5,453	782	...	782	6,806	...	6,806	1,527	...	1,527
Pulpwood	Std. cords[2]	[3]1,375,500	104,184	88,894	15,290	139,560	105,980	33,580	91,605	76,404	15,201
Fuelwood	Std. cords[2]	[4]761,395	57,115	2,120	54,995	109,005	7,925	101,080	33,320	1,692	31,628
Piling	M linear feet	7,524	5,891	5,831	60	33,764	33,404	360	6,919	6,859	60
Poles	M pieces	505	7,716	7,716	...	44,203	44,203	...	9,076	9,076	...
Posts	M pieces	6,776	4,384	2,590	1,794	8,263	1,127	7,136	4,002	2,432	1,570
Hewn ties	M pieces	402	2,822	295	2,527	21,429	2,181	19,248	4,874	402	4,472
Miscellaneous[5]	M cu. ft.	[6]5,352	5,352	128	5,224	37,134	...	37,134	10,248	111	10,137
Total			346,761	179,184	167,577	1,428,126	606,800	821,326	365,639	175,890	189,749

1/ International 1/4-inch rule.
2/ Rough wood basis.
3/ Not including 0.2 million cubic feet of wood from mill residues used for pulp.
4/ Not including 64.0 million cubic feet of wood from mill residues used for domestic and industrial fuel.
5/ Includes handle stock, furniture stock, chemical wood, etc.
6/ Not including 2.5 million cubic feet of mill residues used for miscellaneous products.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